Color television **Chassis**

FTP2.2U

AA

Service
Service
Service

Service Manual SDI plasma panels: 3122 785 14940

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Service Manual

Contents **Page**

Contents **Page**

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	:	Plasma
Screen size	:	42” (106 cm), 16:9
	:	50” (127 cm), 16:9
Resolution (HxV pixels)	:	42”(SDI)-1024x768p
	:	42”(FHP)-1024x1024i
	:	50” - 1366x768p
Contrast ratio	:	42” (SDI) - 3000:1
	:	42” (FHP) - 1000:1
	:	50” - 1000:1
Light output	:	42” - 1000 cd/m^2
	:	50” - 900 cd/m^2
Viewing angle (HxV degrees)	:	160x160
Tuning system	:	PLL
Color systems	:	NTSC 3.58
Video playback	:	NTSC 3.58
Supported formats	:	480p
	:	576p (YprPb)
	:	720p
	:	1080i
	:	XGA (1024x768)
	:	WXGA (1280x768)
Channel selections	:	125 presets
	:	Full cable
Aerial input	:	75 ohm, F-type

1.1.2 Sound

Sound systems	:	AV stereo
	:	BTSC
Maximum power	:	3 x 15 W_{RMS} (int.)

1.1.3 Miscellaneous

Power supply:		
- AC Power voltage	:	108 - 132 V_{AC}
- AC Power frequency	:	60 Hz.
Ambient conditions:		
- Temperature range	:	+5 to +40 °C
- Maximum humidity	:	90 % R.H.
Power consumption		
- Normal operation	:	42” - 450 W
	:	50” - 600 W
- Standby	:	< 2 W
Dimensions (WxHxD) in cm	:	42” - 109x75x10
	:	50” - 128x88x10
Weight	:	42” - 42 kg
	:	50” - 58 kg

1.2 Connections

Note: The following connector color abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, Ye= Yellow.

1.2.1 Side I/O

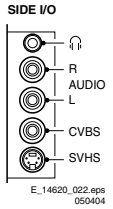

Figure 1-1 Side I/O connections

Headphone (Output)

Bk	- Headphone	32 - 600 ohm / 10 mW

Cinch (Input)

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

Hosiden: SVHS (Input)

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP}/75 ohm

1.2.2 Rear Connections

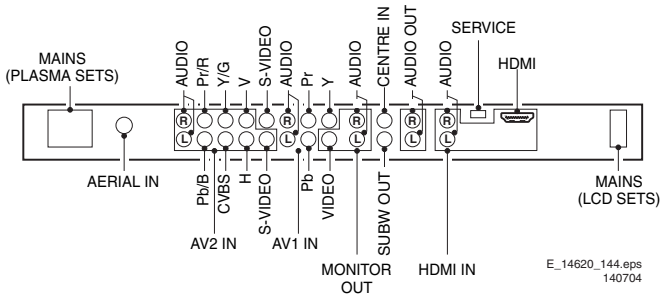

Figure 1-2 Rear connections

Aerial - In

-	- F-type	Coax, 75 ohm

AV2 Cinch: Video CVBS/YPbPr/RGB - In, Audio - In

Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm
Bu	- Video Pb/B	0.7 V_{PP} / 75 ohm
Rd	- Video Pr/R	0.7 V_{PP} / 75 ohm
Ye	- Video CVBS	1 V_{PP} / 75 ohm
Ge	- Video Y/G	1 or 0.7 V_{PP} / 75 ohm
Bk	- Sync H	0 - 5 V
Bk	- Sync V	0 - 5 V

AV2 S-Video: Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP}/75 ohm

AV1 S-Video: Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 Vpp/75 ohm
4	- Video C	0.3 Vpp/75 ohm

AV1 Cinch: Video CVBS/YPbPr - In, Audio - In

Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm
Bu	- Video Pb	0.7 V_{PP} / 75 ohm
Rd	- Video Pr	0.7 V_{PP} / 75 ohm
Ge	- Video Y	1 V_{PP} / 75 ohm

Monitor out

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

Cinch: Subwoofer - Out, Centre - In

Bu	- Audio Center	0.5 V_{RMS} / 10 kohm
Bk	- Audio Subw.	0.5 V_{RMS} / 10 kohm

Cinch: Audio - Out

Rd	- Audio R	0.5 V_{RMS} / 10 kohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm

Cinch: HDMI Audio - In

Rd	- Audio R	0.5 V_{RMS} / 10 kohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm

Service connector (ComPair)

1	- SDA-S	I2C Data (0 - 5 V)
2	- SCL-S	I2C Clock (0 - 5 V)
3	- Ground	Gnd

HDMI: Digital Video, Digital Audio - In

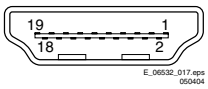

Figure 1-3 HDMI (type A) connector

1	- D2+	Data channel
2	- Shield	Gnd
3	- D2-	Data channel
4	- D1+	Data channel
5	- Shield	Gnd
6	- D1-	Data channel
7	- D0+	Data channel
8	- Shield	Gnd
9	- D0-	Data channel
10	- CLK+	Data channel
11	- Shield	Gnd
12	- CLK-	Data channel
13	- n.c.	
14	- n.c.	
15	- DDC_SCL	DDC clock
16	- DDC_SDA	DDC data
17	- Ground	Gnd
18	- +5V	
19	- HPD	
20	- Ground	Gnd

1.3 Chassis Overview

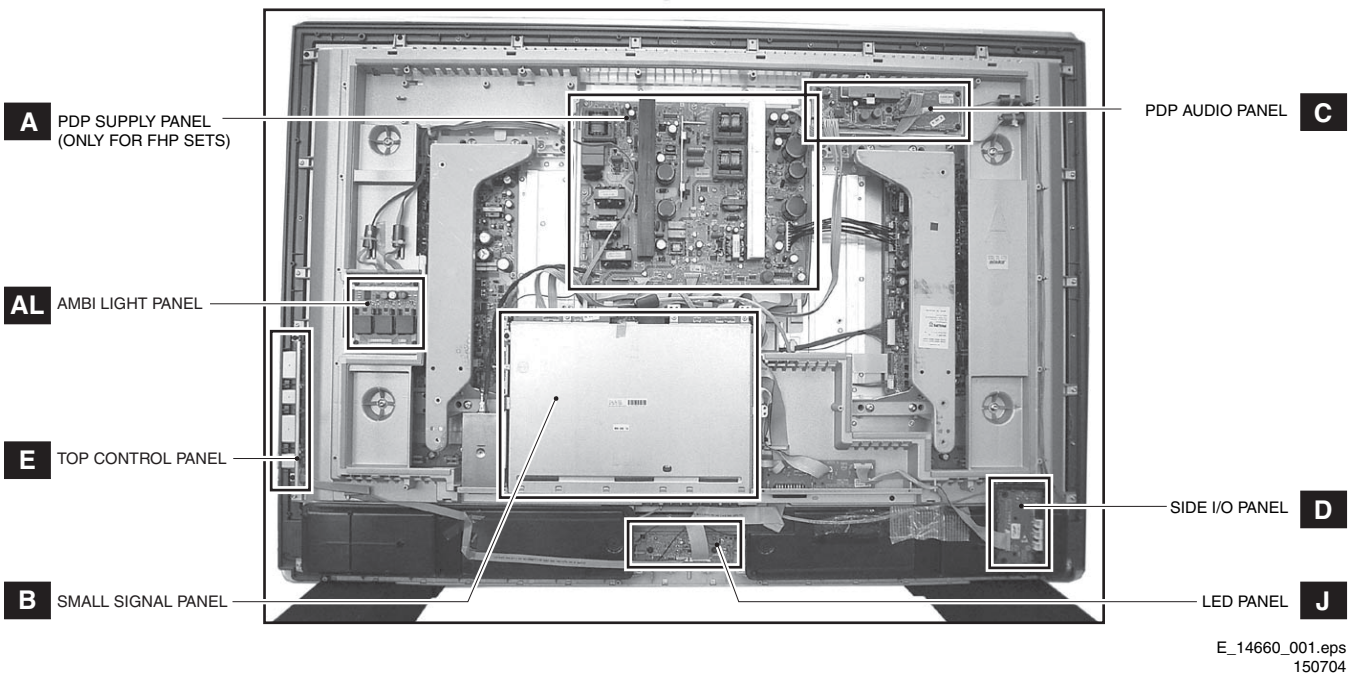

Figure 1-4 CBA locations

2. Safety Instructions, Warnings, and Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:
- Connect the set to the AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:
- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power plug and the secondary side (only for sets which have a AC Power isolated power supply):
  1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
  2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
  Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a color bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⊓⊓) and without (⊼) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in standby (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

Figure 2-1 Dolby PL Symbol

2.3.2 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.

Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. To reflow the solder, apply a temperature profile according to the *IC data sheet*. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
For more information on how to handle BGA devices, visit this URL: *http://www.atyourservice.ce.philips.com* (needs subscription). After login, select “Magazine”, then go to “Workshop Information”. Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead Free Solder

Some PWBs in this chassis are “lead-free **prepared**”. This is indicated on the PWB by the PHILIPS lead-free logo (either by a service-printing or by a sticker). It does not mean that lead-free solder is actually used!

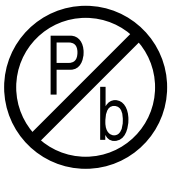

Figure 2-2 Lead-free logo

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions - reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following website:
http://www.philips.com/support

4. Mechanical Instructions

Index of this chapter:

Notes:
- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassemble instructions in described order.
- Be aware that the internal (gold colored) frame is made of conducting material. So, be cautious during electrical measurements!

4.1 Cable Dressing

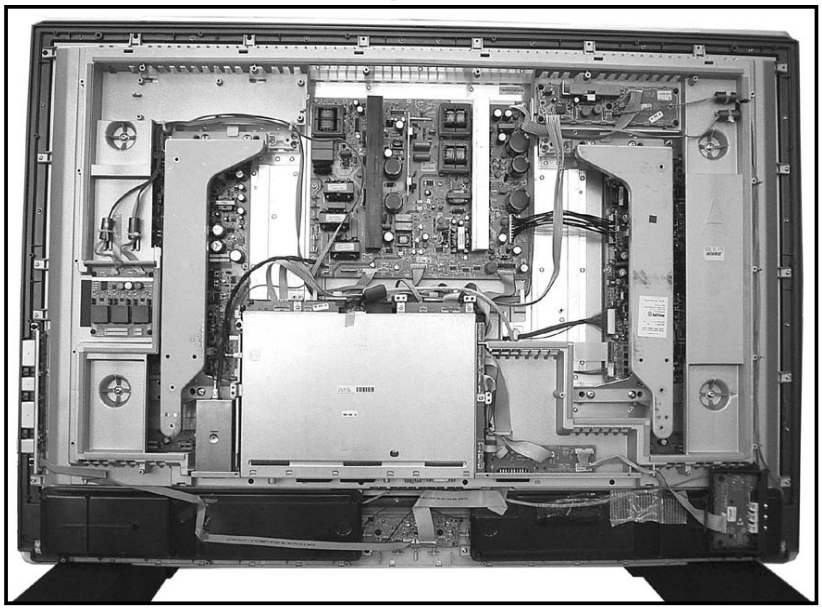

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Figure 4-1 Cable dressing

4.2 Service Position

For easy servicing of this set, there are a few possibilities created:
- The buffers from the packaging (see figure "Rear cover").
- Foam bars (created for service).
- Aluminium service stands (created for service).

4.2.1 Foam Bars

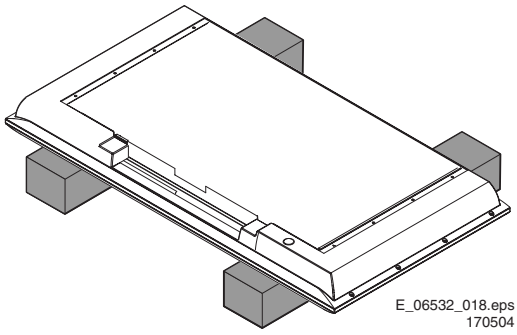

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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments.
By placing a mirror under the TV, you can monitor the screen.

4.2.2 Aluminium Stands

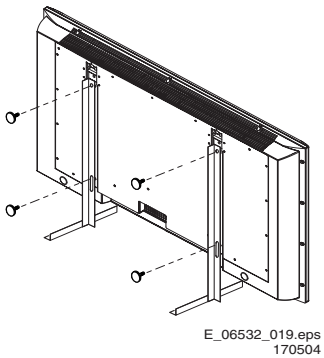

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Figure 4-3 Aluminium stands (MkI)

The new (MkII) aluminium stands (order code 3122 785 90690) can also be used to do measurements, alignments, and duration tests. The stands can be (dis)mounted quick and easy by means of sliding them in/out the "mushrooms".
Important: For (older) FTV sets without these "mushrooms", it is obligatory to use the provided screws, otherwise it is possible to damage the monitor inside!.

4.3 Assy/PWB Removal

4.3.1 Metal Back Plate

Caution: Disconnect the AC Power (mains) cord before you remove the metal back plate.

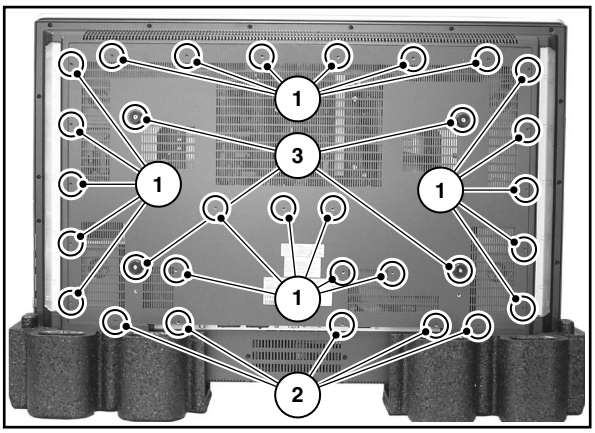

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Figure 4-4 Metal back plate

1. Place the TV set upside down on a table top, using the foam bars (see part "Foam Bars"). **Caution:** do **not** put pressure on the display, but let the monitor lean on the speakers or the Front cover.
2. Remove all T10 parker screws (1) from the top, centre, and left and right sides of the back plate.
3. Remove all T10 tapping screws (2) from the bottom of the back plate.
4. Remove the four "mushrooms" (3) from the back plate.
5. Lift the back plate from the set. Make sure that wires and flat foils are not damaged during the back plate removal.

4.3.2 Rear Cover

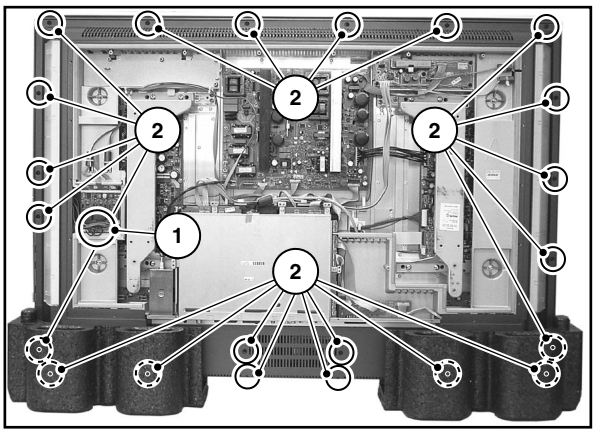

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Figure 4-5 Rear cover

1. Disconnect all four connectors (1) at the Ambient Light Inverter that go to the Ambient Lights in the rear cover.
2. Remove all T10 parker screws (2) around the edges of the rear cover.
3. Lift the rear cover from the set.

4.3.3 Ambient Light Panel

1. Disconnect all cables from the Ambient Light Inverter panel.
2. Remove all mounting screws from the Ambient Light Inverter panel.
3. Take out the Ambient Light Inverter panel.

4.3.4 Power Supply Panel

1. Disconnect all cables from the Power Supply panel.
2. Remove all mounting screws from the Power Supply panel.
3. Take out the Power Supply panel.

4.3.5 Audio Panel

1. Disconnect all cables from the Audio panel.
2. Remove all mounting screws from the Audio panel.
3. Take out the Audio panel.

4.3.6 Side I/O Panel

1. Disconnect the cable from the Side I/O panel.
2. Release the clamps and take out the Side I/O panel from its bracket.

4.3.7 Top / Side Control

1. Remove the mounting screws from the Top / Side Control panel bracket.
2. Disconnect the cable.
3. Release the clamps and take out the Top / Side Control panel.

4.3.8 LED Panel

1. Disconnect all cables from the LED panel.
2. Remove the mounting screws from the LED panel.
3. Take out the LED panel.

4.3.9 Speakers

1. Remove all mounting screws.
2. After removing the cover plate, you can access the speakers.
3. Be sure that the foam that makes the unit airtight is not damaged.

4.3.10 SSB

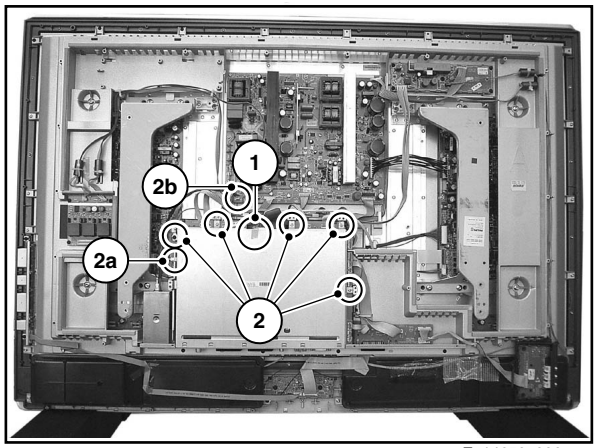

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Figure 4-6 SSB top shielding

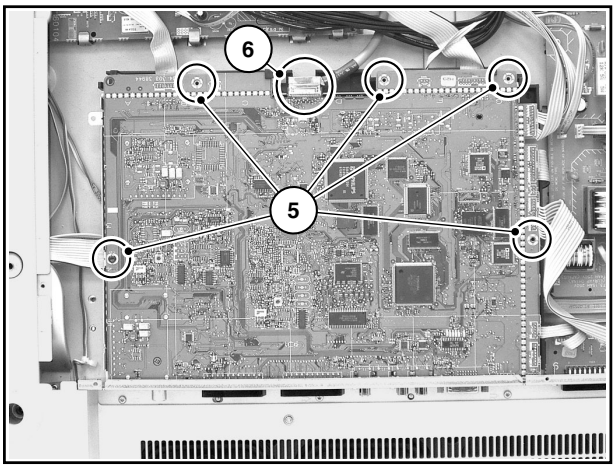

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Figure 4-7 SSB (photo from FTL2.1)

1. Remove the LVDS fixing tape (1).
2. Remove all fixing screws (2).
3. Disconnect the grounding wire from the AC Power filter (2a).
4. Shift, and lift the shielding at the top. The panel hinges at the connector side.
   Caution: do **not** damage the EMC shielding foam while you remove the shielding.
5. Remove all connector fixation screws from the connector plate.
6. Remove the mounting screws from the SSB (5).
7. Disconnect the LVDS cable (6).
8. Lift the SSB, disconnect all cables, and take out the SSB.

4.3.11 Ambient Lights

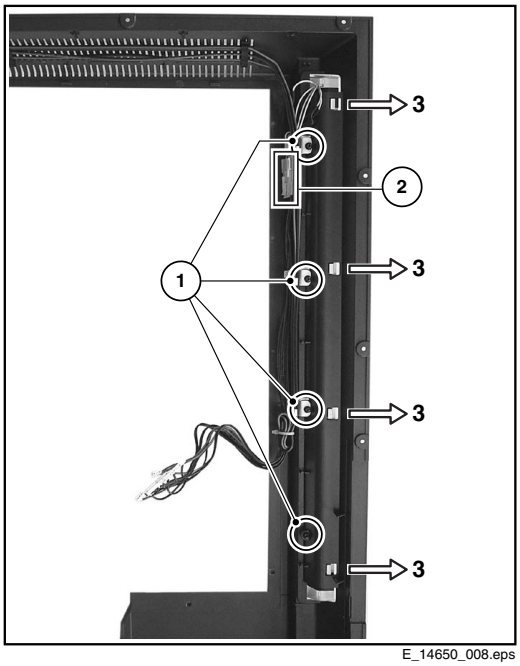

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Figure 4-8 Ambient light

Ambient lights are located in the rear cover of the set.

1. Remove all mounting Ambient Light screws (1).
2. Unplug the connectors (mounted with double-sided tape) (2).
3. Shift the Ambient light unit to the side (3) and take out the unit.

4.4 Plasma Panel / Glass Plate (Dis)Assembly

Important: Be sure to work in a dust free environment during the following activities. In addition, the use of (fabric) hand gloves is advised.

4.4.1 Plasma Display Panel

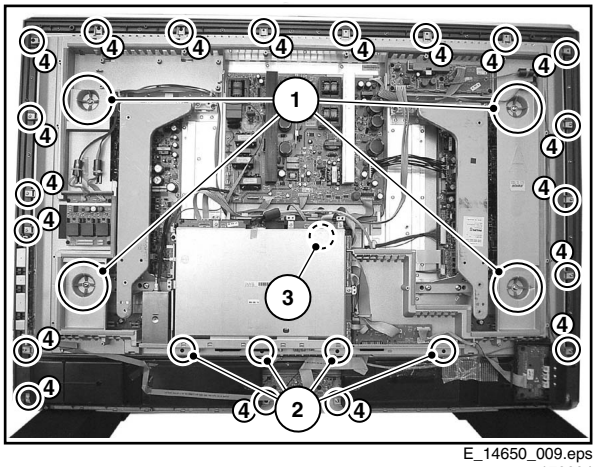

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Figure 4-9 Plasma panel removal (photo from 42" FHP)

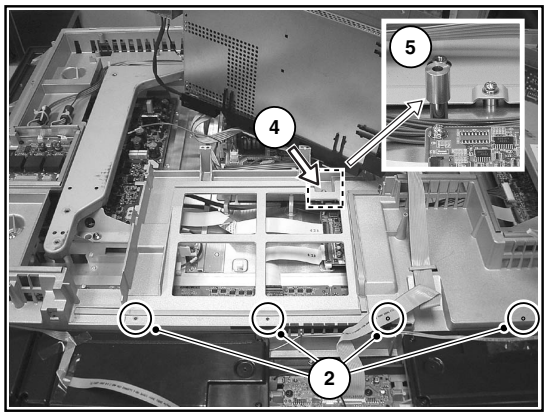

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Figure 4-10 Hidden screw

Disassembly

1. Place the TV set face down on the foam bars. Place the bars at the edges of the set so they will support the front frame, and not only the glass plate!
2. Remove the four T25 screws (1) that hold the plasma panel.
   Note: In some models, the upper left T25 screw is hidden under the Ambient Light Inverter panel. Remove this panel to get access to it.
3. Remove the fifth T25 screw that is located near the SSB.
   Note: In some models, this fifth screw is hidden under the SSB. To get access, you have to remove the four T10 screws (2) that mount the "SSB connector plate" to the frame. Then, lift the complete SSB unit away, so you can remove the hidden screw (4).
4. Remove all T10 tapping screws around the frame (4).
5. Next step is to unplug the following connectors (see also Wiring Diagram in chapter 6):
   – AC Power plug on PSU.

- Audio panel supply plug on PSU.
- LVDS plug on SSB.
  SSBCaution: Be careful, because this connection is very fragile!
- Ambilight supply plug on PSU.
- SSB supply plugs on PSU.
- Side/Top Control plug on LED panel.
- Side I/O plug on LED panel.
- SSB grounding wire.

6. Lift the plastic frame together with all PWBs from the PDP panel.
7. Now the PDP (incl. the PSU panel) can be removed. Lift the panel at the two metal bars from the glass plate.
8. Before sending the plasma panel to the NSO for repair or exchange, remove the PSU panel and the spacer (5) that is placed upon the centre mounting stud.

Assembly

In order to centre the (new) plasma panel correctly w.r.t. the glass plate, do the following:

1. Place the (new) plasma panel face down on foam bars.
2. Also, place the front assy (front panel with glass plate) on two other foam bars.
3. Mount the plastic frame on the plasma panel.
   Important: Be sure that the spacer (order code 3104 301 62781) is placed upon the centre mounting stud (5).
4. Lift this module (frame and PDP) and place it into the front assy.
5. Now follow the above described disassembly process in reverse order.

4.4.2 Glass Plate

1. Follow the above-described PDP disassembly instructions.
2. After removing the PDP, the glass plate is now accessible.

4.5 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Note: While re-assembling the set, make sure that:

- All cables are placed and connected in their original position (see figure “Cable dressing”).
- EMC Shielding foam is intact.
- LVDS connector (SSB) is secured with tape.
- Metal shielding strip at the Ambilight Inverters is in place.
- All "grounding" wires are re-connected:
  - Between metal speaker grid and frame (near the LED panel).
  - Between the AC Power Filter and the SSB Top Shielding (see figure SSB Top shielding item 2a).
  - Between the SSB Top Shielding and the PSU (see figure SSB Top shielding item 2b).

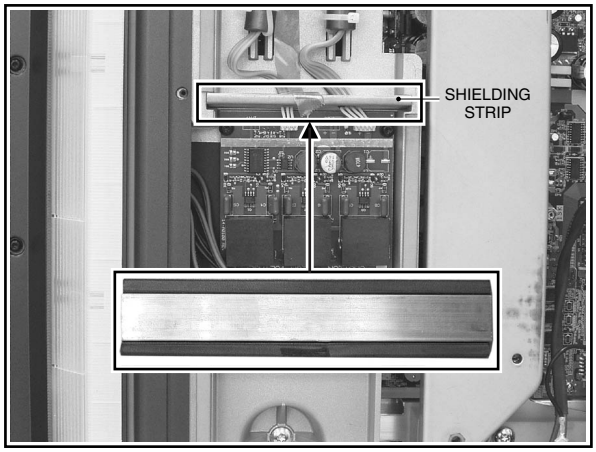

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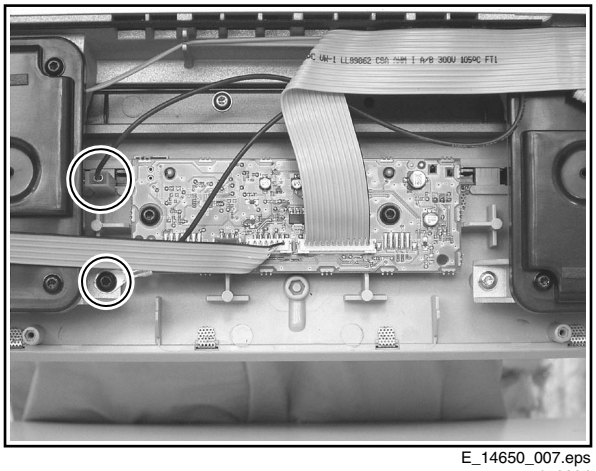
Figure 4-11 Metal shielding strip at the Ambilight Inverter (**Note:** latest version is perforated for better heat dissipation)



E_14650_007.eps
150604

Figure 4-12 Grounding wire of metal speaker grid

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Conditions

The chassis is equipped with test points printed on the circuit board assemblies.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: color bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

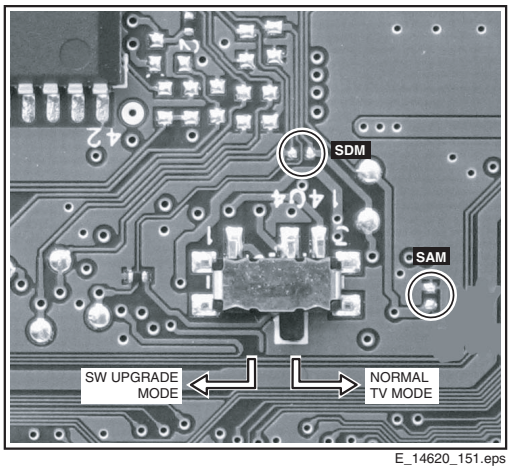
There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Minimum requirements: a Pentium processor, Windows 95/ 98, and a CD-ROM drive (see also paragraph “ComPair”).

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections.
- To start the blinking LED procedure.

Specifications
- Tuning frequency: 61.25 MHz (channel 3) for NTSC.
- Color system: NTSC M/N.
- All picture settings at 50 % (brightness, color, contrast).
- All sound settings at 50 %, except volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Blue mute.
  - Automatic volume limiter (AVL).
  - Auto switch-off (when no video signal was received for 10 minutes).
  - Skip/blank of non-favourite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to activate SDM
Use one of the following methods:
- Use the standard RC-transmitter and key in the code **“062596”**, directly followed by the “MENU” button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it off, push the “MENU” button again.



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290704

Figure 5-1 Service pads

- Short for a moment the two solder pads on the SSB, with the indication “SDM”. Activation can be performed in all modes, except when the set has a problem with the main microprocessor.
  Caution: If the SDM is activated via the pins, all the software-controlled protections are de-activated.
- Use the DST-emulation feature of ComPair.
- Use the “DEFAULT” button on the Dealer Service Tool (RC7150).

After activating this mode, “SDM” will appear in the upper right corner of the screen.

How to navigate
When you press the “MENU” button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to exit SDM
Use one of the following methods:
- Switch the set to STANDBY via the RC-transmitter.
- Press the “EXIT” button on the DST.
- Via a standard customer RC-transmitter: key in “00”-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

Specifications
- Operation hours counter.
- Software version.
- Option settings.
- Error buffer reading and erasing.
- Software alignments.

How to activate SAM
Use one of the following methods:
- Via a standard RC transmitter: key in the code “062596” directly followed by the “OSD [i+]” button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing any digit key on the RC.

- Short for a moment the two solder pads on the SSB with the indication "SAM". Depending on the software version, it is possible that a service warning will appear. You can continue by pressing any digit key on the RC.
- Use the DST-emulation feature of ComPair.

After activating this mode, “SAM” will appear in the upper right corner of the screen.

Contents of SAM:

- **OPERATION HOURS.** Displays the accumulated total of operation hours (not the standby hours).
- **SW VERSION INFO.**
  - **ROM VERSION.** Displays the date of the software and the software version of the ROM (**ex.** TX21US_1.0_01234 = AAAABB_X.Y_NNNNN).
    - **AAAA**= the chassis name.
    - **BB**= the region: EU= Europe, AP= Asia Pacific PAL/Multi, AN= Asia Pacific NTSC, US= USA, LT= LATAM.
    - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
    - **NNNNN**= last five digits of 12nc code software.
  - **FBX Version.** Displays the software version of the FBX
  - **SW VERSION EPLD**. Displays the software version of the EPLD.
- **ERRORS.** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph “Error Codes”).
- **DEFECTIVE MODULE.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message “UNKNOWN” here.
- **RESET ERROR BUFFER.** When you press the “OK” button, the error buffer is reset.
- **ALIGNMENTS.** This will activate the “ALIGNMENTS” sub-menu.
- **DEALER OPTIONS.** Extra features for the dealers.
- **SERVICE OPTIONS.** Extra features for Service.
- **INITIALISE NVM.** When an NVM was corrupted (or replaced) in the former EM3 chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all pre-sets and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognises a corrupted NVM, the “initialise NVM” line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialise the NVM (same as in the past, however now it happens conscious).
- **STORE.** All options and alignments are stored when pressing the “OK”-button
- **FUNCTIONAL TEST.** All devices are tested via the “OK” button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **DAILY MENUS.** With the “OK” button, you can go to the normal user menu. SAM is still active in the background. With the “MENU” button, you return from the user menu to SAM menu. This feature can be helpful to quickly change some settings in the user menu.
- **SW MAINTENANCE.**
  - **UPGRADE.** More info see paragraph Software downloading.
- **Operation Hr PDP.** Displays the accumulated total of operation hours of the PDP.

How to navigate

- In SAM, you can select the menu items with the “CURSOR UP/DOWN” key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the “CURSOR UP/DOWN” key to display the next/previous menu items.
- With the “CURSOR LEFT/RIGHT” keys, it is possible to:
  - (De) activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.

How to exit SAM

Use one of the following methods:

- Press the “MENU” button on the RC-transmitter, or
- Switch the set to STANDBY via the RC-transmitter, or
- Press the “EXIT” button on the DST.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer. The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to activate CSM

Use one of the following methods:

- Press the “MUTE” button on the RC-transmitter **simultaneously** with the “MENU” button on the TV (top control) for at least 4 seconds.
- Key in the code “123654” via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to navigate

By means of the “CURSOR-DOWN/UP” knob on the RC-transmitter, you can navigate through the menus.

Contents of CSM

CUSTOMER SERVICE MENU 1

- **SW VERSION (example: TX21US_1.0_01234).** Displays the built-in software version. In case of field problems related to software, software can be upgraded (for more details, see paragraph Software downloading). You will find details of the software versions in the chapter “Software Survey” of the “Product Survey - Color Television” publication. This publication is generated four times a year.
- **FEATURE BOX**. The 12NC-number of the built-in Feature Box software.
- **SET TYPE.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set.
- **CODE 1.** Gives the latest five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 3-digit number. When less than 10 errors occur, the rest of the buffer is empty (000). See also paragraph Error Codes for a description.
- **CODE 2.** Gives the first five errors of the error buffer. See also paragraph Error Codes for a description.

- **VOLUME.** Gives the last status of the volume as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.
- **BRIGHTNESS.** Gives the last status of the brightness as set by the customer. The value can vary from 0 (brightness is minimum) to 100 (brightness is maximum). Brightness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "BRIGHTNESS".
- **CONTRAST.** Gives the last status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 100 (contrast is maximum). Contrast values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "CONTRAST".
- **COLOUR.** Gives the last status of the color saturation, as set by the customer. The value can vary from 0 (color is minimum) to 100 (color is maximum). Color values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "COLOUR".
- **HUE.** Only relevant for NTSC-signals (e.g. some NTSC-DVD-discs).

CUSTOMER SERVICE MENU 2

- **SHARPNESS.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "SHARPNESS".
- **HEADPHONE VOLUME.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Headphone volume values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "SOUND" and "HEADPHONE VOLUME".
- **DOLBY.** Indicates whether the received transmitter transmits Dolby sound ("ON") or not ("OFF"). Attention: The presence of Dolby can only be tested by the software on the Dolby Signalling bit. If a Dolby transmission is received without a Dolby Signalling bit, this indicator will show "OFF" even though a Dolby transmission is received.
- **SURROUND MODE.** Indicates the by the customer selected surround mode (or automatically chosen mode). Possible values are "OFF", "INCREDIBLE SURROUND" OR "DOLBY VIRTUAL". These settings can be influenced after pressing the "MENU" button and selecting "SOUND" and SURROUND MODE". It can also have been selected automatically by signalling bits (internal software).
- **TUNER FREQUENCY.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys for fine tune after opening the installation menu and selecting "INSTALL" and "MANUAL INSTALL".
- **DIGITAL OPTION.** Gives the selected digital mode, "PROGRESSIVE SCAN", "MOVIE PLUS" or "PIXEL PLUS". Change via "MENU", "PICTURE", "DIGITAL OPTIONS".
- **CENTRE TRIM.** Not applicable for this set.
- **TV SYSTEM.** Gives information about the video system of the selected transmitter.
  - BG: PAL BG signal received.
  - DK: PAL DK signal received.
  - I: PAL I signal received.
  - L/La: SECAM L/La signals received.
  - M: NTSC M signal received with video carrier on 38.9 MHz.

CUSTOMER SERVICE MENU 3

- **BALANCE.** Indicates the balance settings, between "-50" and "+50". Change via "MENU", "SOUND", and "BALANCE". Not applicable for Dolby Pro Logic sets.
- **CENTRE MODE.** Indicates if centre mode is set "ON" or "OFF". When centre mode is on, all TV speakers are used as one centre speaker. Change Centre mode via "MENU", "SETUP", "SPEAKERS", and "CENTRE MODE".
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), "OFF", "MINIMUM", "MEDIUM", or "MAXIMUM". Change via "MENU", "PICTURE", "DNR"
- **NOISE FIGURE.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
- **SOURCE.** Indicates which source is used and the video/audio signal quality of the selected source. (Example: Tuner, Video/NICAM) Source: "TUNER", "EXT1", "EXT2", "EXT3", "EXT4", "SIDE", "AV1", "AV2", "AV3" or "AV4". Video signal quality: "VIDEO", "S-VIDEO", "RGB 1FH", "YPBPR 1FH 480P", "YPBPR 1FH 576P", "YPBPR 1FH 1080I", "YPBPR 2FH 480P", "YPBPR 2FH 576P", "YPBPR 2FH 1080I", "RGB 2FH 480P", "RGB 2FH 576P" or "RGB 2FH 1080I". Audio signal quality: "STEREO", "SPDIF 1", "SPDIF 2", or "SPDIF".
- **AUDIO SYSTEM.** Gives information about the audio system of the selected transmitter: "ANALOGUE MONO", "ANALOGUE STEREO", "PCM 2/0", "DD 1/0", "DD 2/0 LtRt", "DD 2/0 L0R0", "DD 2/1", "DD 2/2", "DD 3/0", "DD 3/1", "DD 3/2", "DD 1+1", "MPEG 1/0", "MPEG 2/0", "MPEG 2/0 LtRt", "MPEG 2/1", "MPEG 2/2", "MPEG 3/0", "MPEG 3/1", "MPEG 3/2", "MPEG 1+1" or "MPEG 2+2".
- **TUNED BIT.** Gives information about the tuning method of the stored pre-set. If a channel is found via "automatic installation", you will see the value "YES". When you change this (automatically found) frequency via "fine tune" adjustment (installation menu - manual installation), the displayed value will change to "NO". Therefore, when you see the value "NO" in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **SURROUND SPEAKERS.** Not applicable in this set.
- **ON TIMER.** Indicates if the "On Timer" is set "ON" or "OFF" and if the timer is "ON" also displays start time, start day and program number. Change via "MENU", "TV", "FEATURES", and "ON TIMER".
- **PRESET LOCK.** Indicates if the selected preset has a child lock: "LOCKED" or "UNLOCKED". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "CUSTOM LOCK".

CUSTOMER SERVICE MENU 4

- **CHILD LOCK.** Indicates the last status of the general child lock: "UNLOCK", "LOCK", or "CUSTOM LOCK". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "LOCK".
- **AGE LOCK.** Indicates the last status of the EPG rating for child lock: "OFF", "4 YEARS", "6 YEARS", "8 YEARS", "10 YEARS", "12 YEARS", "14 YEARS" or "16 YEARS". This is only displayed if child lock is set to "CUSTOM LOCK"
- **LOCK AFTER.** Indicates at what time the child lock is set: "OFF" or e.g. "18:45" (lock time). This is only displayed if child lock is set to "CUSTOM LOCK"
- **CATEGORY LOCK.** Indicates the last status of the EPG theme childlock: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES". This is only displayed if child lock is set to "CUSTOM LOCK". It is possible that more than one value is shown.
- **PROGRAM CATEGORY.** Indicates the theme of the selected transmitter: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES".

- **TV RATINGS LOCK.** Only applicable for US. Gives the setting of V-chip as selected by the customer (for more details see user manual).
- **MOVIE RATINGS LOCK.** Only applicable for US. Gives the ability to select access to individual movies based on their MPAA ratings (for more details see user manual).
- **V-CHIP TV STATUS.** Only applicable for US. Gives the setting of the V-chip as applied by the selected TV-channel. Same values can be shown as for “TV Ratings Lock”.

CUSTOMER SERVICE MENU 5

- **V-CHIP MOVIE STATUS.** Only applicable for US. Gives the status of the V-chip from the selected TV-channel for individual movies based on their MPAA rating. Same values can be shown as “Movie Ratings Lock”.
- **OPTIONS 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **OPTIONS 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): “ON” or “OFF”. Change via “MENU”, “TV”, “SOUND”, “AVL”
- **DELTA VOLUME.** Indicates the last status of the delta volume for the selected preset as set by the customer: from “-12” to “+12”. Change via “MENU”, “TV”, “SOUND”, “DELTA VOLUME”.
- **FRONT SPKR DIST.** Not applicable for this set.
- **FRONT SPKR DIST.** Not applicable for this set.

How to exit CSM

Use one of the following methods:

- After you press a key on the RC-transmitter (with exception of the “CHANNEL”, “VOLUME” and digit (0-9) keys), or
- After you switch the TV-set “OFF” with the AC Power switch.

5.3 Problems and Solving Tips (related to CSM)

Note: Below described problems are all related to the TV settings (visible in the CSM menu). The procedures to change the value (or status) of the different settings are described above. New value(s) are automatically stored.

5.3.1 Picture Problems

Snowy/noisy picture

1. Check in CSM line NOISE FIGURE. In case the value is "127" or higher, and the value is also high on other programs, check the aerial cable/aerial system. For some software versions, the noise figure will only be valid when “Active Control” is set to “medium” or “maximum”.
2. Check in CSM lines SHARPNESS and NOISE FIGURE. In case the value of line SHARPNESS is "3" or "4" and the value of line NOISE FIGURE is high ("127" or higher), decrease the "Sharpness” value.

Picture too dark

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, increase the “Brightness” or the “Contrast” value. The new value(s) are automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM line BRIGHTNESS and CONTRAST. If the value of these lines is low (< "10"), increase the “Brightness” or the “Contrast” value via the user menu.

Picture too bright

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, decrease the “Brightness” or the “Contrast” value. The new value(s) are automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM lines BRIGHTNESS and CONTRAST. If the value of these line is high (> “50”), decrease the “Brightness” value or increase the “Contrast” value via the user menu.

White line around picture elements and text

1. Press “Menu”, “TV”, “Picture”, “Smart Picture”. In case the picture improves, decrease the “Sharpness” value. The new value is automatically stored (in “personal” pre-set) for all TV channels.
2. Check in CSM line “Sharpness”. If the value is high, decrease it. The new value is automatically stored for all TV channels.

No picture

Check in CSM line TUNED BIT. In case the value is “No”, install the required program again. Open the installation menu and perform manual installation.

No picture

No proper signal is received. Check the aerial cable/aerial system.

No picture or unstable picture

A scrambled or decoded signal is received.

Black and white picture

Check in CSM line COLOUR. In case the value is low (< "10"), increase the “Color” value via the user menu. The new value is automatically stored for all TV channels.

No colors/color lines around picture elements or colors not correct or unstable picture

1. Check in CSM line TV SYSTEM. If a “strange” system pops up, something has gone wrong during installation. Re-install the channel.

Menu text not sharp enough

1. Press “MENU”, “TV”, “PICTURE”, “SMART PICTURE”. In case picture improves, decrease the contrast value. The new value(s) are automatically stored for all TV channels.
2. Check line “Contrast”. If the value is high, decrease the contrast value.

5.3.2 Sound Problems

No sound from left and right speaker

Check line 6 “Volume”. The value is low. Increase the value of “Volume”. The new value(s) are automatically stored (in “personal” pre-set) for all TV channels.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatic (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I2C level. ComPair can access the I2C bus of the television. ComPair can send and receive I2C commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I2C busses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extends. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the Dealer Service Tool (DST).
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.
  Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier*.
  – Click on the “Panel” hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  – Click on the “Schematic” hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 Stepwise Start-up

Under normal circumstances, a fault in the power supply, or an error during start-up, will switch the television to protection mode. ComPair can take over the initialisation of the television. In this way, it is possible to distinguish which part of the start-up routine (hence which circuitry) is causing the problem. Take notice that the transition between two steps can take some time, so give the set some time to reach a stable state. During the transition time, the LED can blink strangely.

Stepwise start- up explanation
This is realised via ComPair and is very helpful when a **protection** is activated (see also chapter “Protections”). The following diagram shows the start-up procedure of the set. Every step of the stepwise start-up (also called trapped start-up) in the diagram corresponds with the number of times the led blinks.

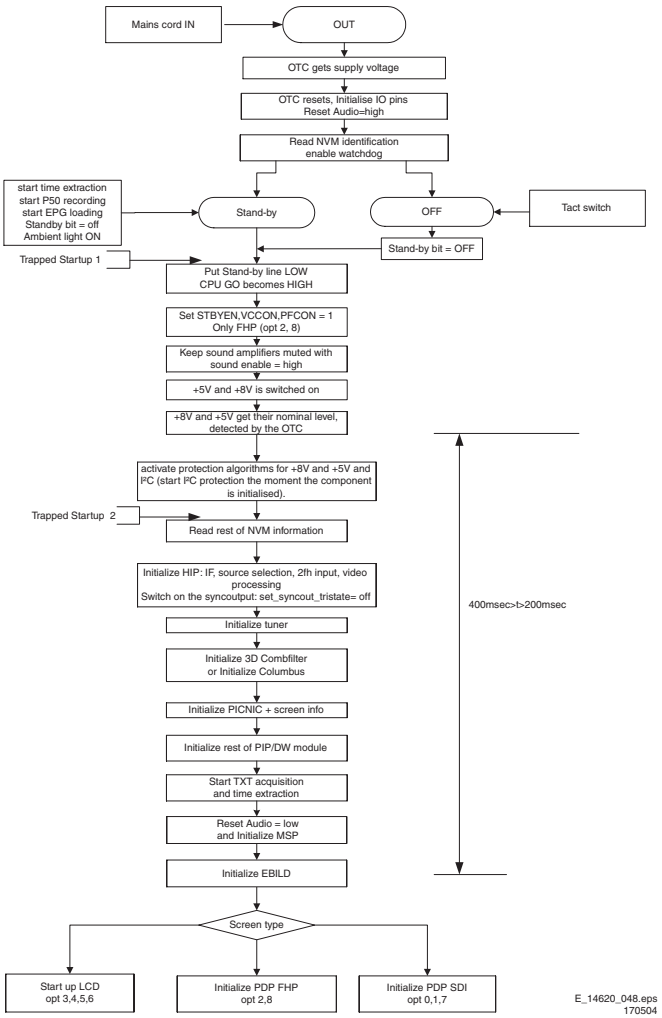

Figure 5-2 Stepwise startup part 1

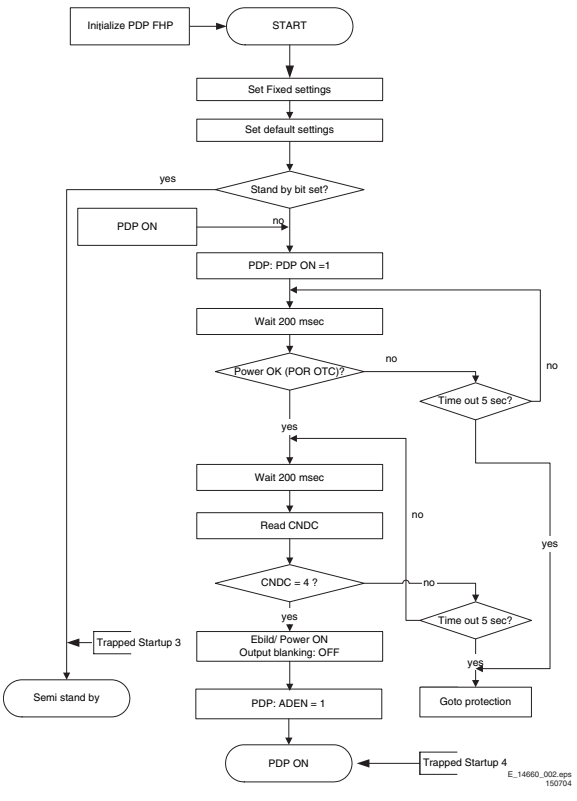

Figure 5-3 Stepwise startup part 2: Initialise FHP

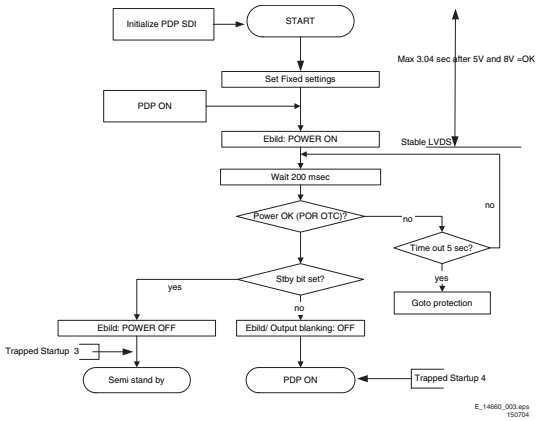

Figure 5-4 Stepwise startup part 2: Initialise SDI

Note (*):

- When the set is in stepwise mode and, due to stepping-up, a protection is activated, the set will really go into protection (blinking LED). The set will not leave the stepwise-mode however. If state X is the state where the set went to protection, stepwise start-up will return to state X-1. At state (X-1) diagnostic measurements can be performed. Also, in the short time the set is in state X but not yet in protection, you can also do some measurements.

5.4.4 How To Connect

This is described in the chassis fault finding database in ComPair .

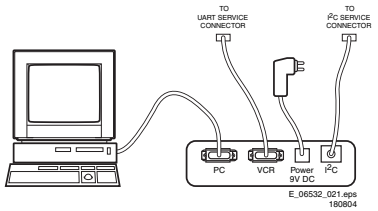

Figure 5-5 ComPair interface connection

5.4.5 How To Order

This is described in the chassis fault finding database in ComPair.

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to read the Error Buffer

Use one of the following methods:

- On screen via the SAM (only if you have a picture). Examples:
  - **0 0 0 0 0**: No errors detected
  - **6 0 0 0 0**: Error code 6 is the last and only detected error
  - **9 6 0 0 0**: Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.5.3 How to clear the Error Buffer

Use one of the following methods:

- By activation of the “RESET ERROR BUFFER” command in the SAM menu.
- With a normal RC, key in sequence “MUTE” followed by “062599” and “OK”.
- When you transmit the commands “DIAGNOSE” - “99” - “OK” with ComPair (or with a DST).
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).
There are various errors:

- I2C device errors.
- I2C bus errors.
- Protection errors.
- Errors not related to an I2C device, but of importance:
  - **FEM (Falconic with Embedded Memory)(Error 26):** at start-up, after initialisation of the PICNIC, the presence of the FEM can be checked.
  - **Eagle (Error 27):** at start-up, after initialisation of the PICNIC, the presence of the Eagle can be checked.

Table 5-1 Error Table

Error	Device	Description	Def. item	Def. Module indication	Diagr.
1	M24C32	NVM, spontaneous blinking error 1	7011	Control	B5a
3	SAA4978	PICNIC	7713	Feature Box	B3a
4	Supply 5 V	5V protection	/	+5V Supply	B5a
5	Supply 8 V	8V protection	/	+8V Supply	B5a
6	Slow I2C bus blocked	Spontaneous blinking error 6	/	Slow I2C Blocked	/
8	TDA932x	HIP High-end Input Processor	7323	Chroma IF IO	B2
13	UV1318/...	Tuner protection	1T01	Tuner	B13a
14	MSPxxxx	ITT sound processor	7A02	Audio module	B6a
18	Fast I2C bus blocked	Spontaneous blinking error 18	/	Fast I^2C Blocked	/
21	M62320P	I/O Expander	7P56	Video Dual Screen	B15b
23	UV1318/...	Sub tuner	1T02	Video Dual Screen	B13b
24	SAB9083H	PIP Muppet	7PA6	Video Dual Screen	B15c
25	Z86130	V-CHIP (US only)	7P51	Video Dual Screen	B15b
26	SAA4998	FEM (Falconic with Embedded Memory)	7760	+3V (FBX) Supply	B3b
27	T6TX5ES	Eagle 1C	7720	+3V (FBX) Supply	B3c
32	M29W400BT	Flash Ram (EPG)	7012	EPG Memory	B5a
34	TDA932x	Second HIP	7P09	Video Dual Screen	B15a
35	T6TU5ES	Columbus	7752	+3V (FBX) Supply	B3d
53	AD9883A	AD converter	7E23	HD	B19c
55	DC/DC converter	One of the voltages is not ok + protection error	/	Supply	/
56	EPLD	EPLD error	7V01	Video control	B19d
76	Audio supply	Audio supply protection	/	/	/
82	TDA7309	Headphone processor	7A06	Video Dual Screen	B6a
83	TEA6422	Source select matrix audio	7I17	Audio Source Select	B14d

Note:
- Error codes 1, 6, or 18 are protection codes and in this case, supplies of some circuits will be switched “OFF”. Also, in protection, the LED will blink the number of times equivalent to the most recent error code.

5.6 The Blinking LED Procedure

5.6.1 Introduction

Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the SDM is activated, the front LED will show (blink) the contents of the error-buffer. Error-codes > 10 are shown as follows:
– A long blink of 750 ms (which is an indication of the decimal digit),
– A pause of 1.5 s,
– “n” short blinks (where “n” = 1 - 9),
– When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
– The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the front LED will show:
– 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
– 2 short blinks followed by a pause of 3 s,
– 9 short blinks followed by a pause of 3 s,
– 6 short blinks followed by a pause of 3 s,
– 1 long blink of 3 s to finish the sequence,
– The sequence starts again.

Note: If errors 1, 6, or 18 occur, the LED always gives the last occurred error even if the set is NOT in service mode.

5.6.2 How to Activate

Use one of the following methods:
- Activate the SDM (only via soldering pads marked “SDM” on SSB). The blinking front LED will show the entire contents of the error buffer (this works in “normal operation” mode and in “protection” mode).
- Transmit the commands “MUTE” - “062500” - “OK” with a normal RC. The complete error buffer is shown. Take notice that it takes some seconds before the blinking LED starts.
- Transmit the commands “MUTE” - “06250x” - “OK” with a normal RC (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking LED starts.
- “DIAGNOSE X” with the DST (where “x” is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... When x = 0 all errors are shown.

5.7 Protections

5.7.1 Introduction

This chassis has only one microprocessor (OTC), which remains active during Standby. This because power of the microprocessor and the attached memory chip set is coming from the 3V3 supply, which is derived from the 5V Standby-circuitry. Therefore, in both Power-on as in Standby mode, the microprocessor is connected to this power supply.

If a fault situation is detected, an error code will be generated and if necessary, the set is put in protection mode. The protection mode is indicated by the blinking of the front LED at a frequency of 3 Hz (or by a coded blinking in special cases).

The content of the error buffer can be read via the service menu (SAM), the blinking LED procedure or via DST/ComPair.

To get a quick diagnosis, this chassis has three service-modes implemented:
- The **Customer Service Mode** (CSM).
- The **Service Default Mode** (SDM). Start-up of the set in a predefined way.
- The **Service Alignment Mode** (SAM). In this mode, items of the set can be adjusted via a menu.

You can activate both SDM and SAM modes via the “service pads” on the SSB, via an RC-transmitter (DST or standard RC), or via ComPair. It is not possible to activate the SAM in “standby”; the TV has to be in “normal operation” mode.

The “Protection Diagram” shows the structure of the protection system. See diagram below.

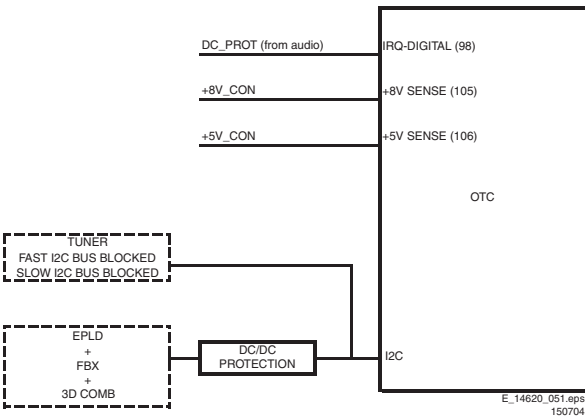

Figure 5-6 Protection diagram

There are several types of protections:
- I2C related protections.
- OTC related protections (via polling on I/O pins or via algorithms).
- Hardware protection

All protections are explained below.

5.7.2 I2C Related Protections

In normal operation, some registers of the I2C controlled ICs are refreshed every 200 ms. During this sequence, the I2C busses and the I2C ICs are checked.
An I2C protection will take place if the SDA and SCL lines are short-circuited to ground, or to each other. An I2C error will also occur, if the power supply of the IC is missing.

DC/DC protection: When a 3V3 supply is short-circuited the DC/DC converter switches off and goes in protection. The FBX, EPLD IC, and 3D comb IC have no supply voltage and give no acknowledge. In this case, the set should go into protection. An error code is written in the NVM: DC/DC error.

FBX protection: the FBX protection is not available any more. It is replaced by the DC/DC protection.

5.7.3 OTC Related Protections

If a protection is detected at an OTC input, the OTC will start to scan all protection inputs every 200 ms for 5 times. If the protection on one of the inputs is still active after 1 s, the microprocessor will put the set in the protection mode. Before the scanning is started, a so-called “ESD refresh” is carried out. This is done, because the interrupt on one of the inputs is possibly caused either by a flash or by ESD. As a flash or ESD can influence IC settings, the HIP, MSP, 3D Comb and wireless module (not used in this set) are initialised again, to ensure the normal picture and sound conditions of the set.

8 V and 5 V protections: The microprocessor senses the presence of the 8 V and 5 V (via the “+5V_CON” and “+8V_CON” lines). If one (or both) of these voltages is (are) not present, an error code is stored in the error buffer of the NVM, and the set is put in the protection mode.

Audio DC protection: The OTC senses if the audio module is in protection via IRQ-DIGITAL (pin 98 of OTC). If this is the case, the OTC puts the set in protection.

5.7.4 Hardware Protection

Short-circuiting the 3V3 supply from the DC/DC converter will shut down the DC/DC converter. The absence of the 3V3 supply line is also sensed via I2C (see description DC/DC protection above), this is useful if there is something wrong in the detection circuit of the DC/DC converter. There are no hardware protections in this chassis, which switch off the main supply.

5.8 Repair tips

5.8.1 3V3 Supply (DC/DC converter)

As mentioned above, the DC/DC converter is switched “off” when something goes wrong (detection of a missing 3V3 supply at one of the devices supplied by the 3V3). Because of this, the set goes to protection (I2C protection). Error code “55” is logged.
For further diagnoses, you need to overrule the I2C protection: put the set in Service Default Mode by means of the solder pads on the SSB.
The DC/DC converter is still not working because it is switched “off” by the 3V3_FAULT line (schematic B12). Now you have some possibilities:
1. First, measure the impedance over diode 6U06. In normal conditions, you should measure approximately 120 ohm (if possible, verify this with another set). If the impedance is much too low, do not try to start up the converter as mentioned below. Remind that if FET 7U03 is short-circuited, this will also influence your measurement.
2. Desolder coils 5U05 and 5U06, connect an external 3V3 supply at capacitor 2U23 (current limitation to 500 mA) and a second external 3V3 supply at capacitor 2U31 (current limitation to 800 mA). The normal working current of the 3V3_SIM line is approximately 400 mA and the normal working current for the 3V3_DCDCFBX line is approximately 700 mA. Therefore, if one of the currents exceeds their nominal value you can determine in which circuit the overload is situated. If the set would start up and you have normal picture, there is probably no overload but a problem in the detection circuits.
3. If you do not have two external power supplies, you can do the following: Desolder coils 5U02, 5U03, and 5U04 (you must desolder all three, otherwise the circuit could be damaged), connect an external power supply of 3V3 at the cathode of diode 6U06. Make sure to limit the current of this external supply to approximately 1200 mA. If the supplied current exceeds 1100 mA (approximately normal working current) you can conclude that one of the devices supplied by 3V3 is short-circuited.
4. Another possibility is to force the converter to start up by short-circuiting (and keep short-circuited) resistor 3U25 (B12).
   Caution: Be aware that this can damage the set. Even if you measure approximately 120 ohm over diode 6U06, there can still be something wrong in the converter itself. By short-circuiting resistor 3U25, the internal protection of the converter is disabled.

5.8.2 ComPair

A “Service” (ComPair) connector is implemented at the rear side of the set, which is directly accessible. In addition to this, there is also a blinking LED procedure to show the contents of the error buffer.
When you use ComPair, you have the possibility to activate a “stepwise start-up” mode. With this mode, you can initiate the start-up sequence step by step. This also means that in certain steps, some protections are not activated. This is sometimes very convenient during repair.

5.8.3 Protections

Activating SDM via the “service pads” will overrule the processor-controlled protections, but not the hardware protections. This means, that the A/D-input protections (5 and 8 V) and the I2C “not-acknowledging” info of FBX + EPLD + 3D Comb and of the tuner are overruled.
Caution: When doing this, the service technician must know what he is doing, as it could lead to damaging the set.

5.8.4 Repair tip table

Table 5-2 Repair tips

Phenomenon	Possible Cause	Repair tip
““F” in right corner of the screen and set is not reacting on remote control. The local keyboard is functioning.	TV is in factory mode.	Press menu button on local keyboard for at least 3 seconds. Set will leave factory mode and function normally again.
No picture, LED blinking at 3 Hz.	Set is in protection due to various causes. For error codes see error-code list.	You have no picture, so: - Read the error buffer via ComPair (error buffer is accessible when set is in protection, ComPair-file will guide you to this). - Read the blinking LED information via standard remote command <mute>**06250x**<ok>. - Or you read the error code sequence via standard remote command <mute>**062500**<ok>. When you have found the error, check the circuitry related to the supply voltage and I2C-communication or the circuitry that triggers the protection.
No picture, LED blinking with code 6-6-6 or 18-18-18.	No communication on slow I2C- or fast I2C-bus.	As processor cannot communicate with one of the 2 busses it the standby-led spontaneously starts blinking 6-6-6-etc or 18-18-18-etc... If in the error buffer somewhere is an error 6 or 18, these will have the highest priority starting the mentioned blinking. Measure dependent of the error on the I2C-bus which device is loading the bus. (Use I2C-overview)
No picture, LED blinking with code 1-1-1.	No communication on NVM-I2C bus to the uP.	As the uP cannot communicate with the NVM I2C bus, it spontaneously starts blinking 1-1-1. Note: when there is no access to the NVM, a lot of picture setting can go wrong.
No RC-reception. Blue LED does not echo RC-commands.	uP circuitry or RC-receiver is defective.	In case the set does react on a local keyboard operation, you must check the RC-receiver circuitry (diagram J).
Picture is not synchronised.	The sync is derived in the HIP.	Check crystals in the HIP circuit on bad contacts.
Picture is distorted.	Check video-path in Service Default Mode.	Investigate whether there is an error code present in the error buffer. In case there is one, check the I2C-bus and/or supply lines (see overview supply lines). Measure and check signal path Tuner-HIP-FBX-EPLD.
Picture with horizontal stripes.	Pixel Plus processing is malfunctioning	Check functionality on circuitry (B3a, B3b, B3c and B3d) of PICNIC, FEM, EAGLE, COLUMBUS and/or field memories. **Tip:** the whole Pixel Plus chipset (4 ICs + Field Memories) can be diagnosed via ComPair.
Various symptoms, due to missing local supply voltage.	An interrupted fuse, NFR-resistor or connection.	When no symptom or error code leads you to a specific circuitry, use the supply lines overview (see supply lines overview), for a quick scan of all supply lines.
No sound at the speakers but sound at monitor out.	Possible problem with the class D amplifier	Check circuitry around IC7700 on diagram SA3 (LCD) or C (PDP).
No sound at the speakers but sound at monitor out.	Sound enable from OTC is HIGH, speakers are muted	Check pin 95 of OTC on diagram B5a.
No sound at the speakers not at monitor out, but sound at monitor output.	POR line is low, anti plop circuit mutes the sound	Check pin 8 on connector 1739 on audio panel. Diagram C for PDP sets and diagram SA3 for LCD sets
No sound from any output (except headphone)	Reset audio is high or MSP is not properly reset	Check pin 16 of MSP (diagram B6a) and circuitry around MSP.
No sound from the tuner but sound from any other input.	Problem with the delay line (PDP sets only)	Check circuitry on diagram B6d.

5.9 Software Downloading

In this chassis, you can **upgrade** the software via ComPair without removing the back cover of the set (it is possible that early production sets don’t have a hole in the back plate, in this case you have to remove the back plate). The switch, which is needed for the software downloading procedure, can be reached through a gap in the back cover or the SSB shielding. The switch can be operated with a toothpick or something like that. Make sure that you do not damage the PWB with sharp objects. You can find more information on how this procedure works in the ComPair file. It is possible that not all sets are equipped with the hardware, needed to make software upgrading possible. To speed up the programming process the firmware of the ComPair interface can be upgraded. See paragraph “How To Order” for the order number.

Personal Notes:

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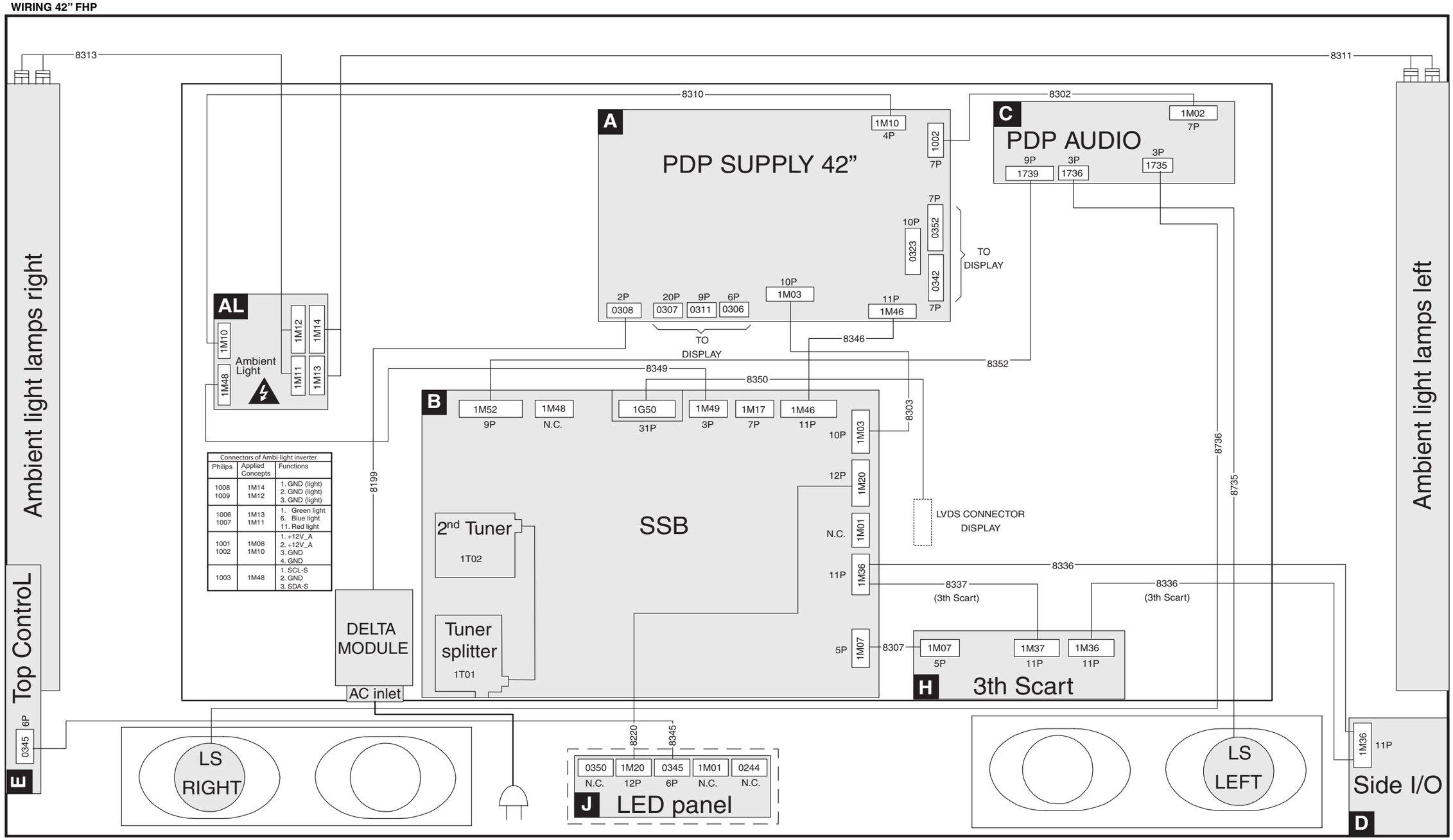
6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram 42 Inch FHP

WIRING 42" FHP



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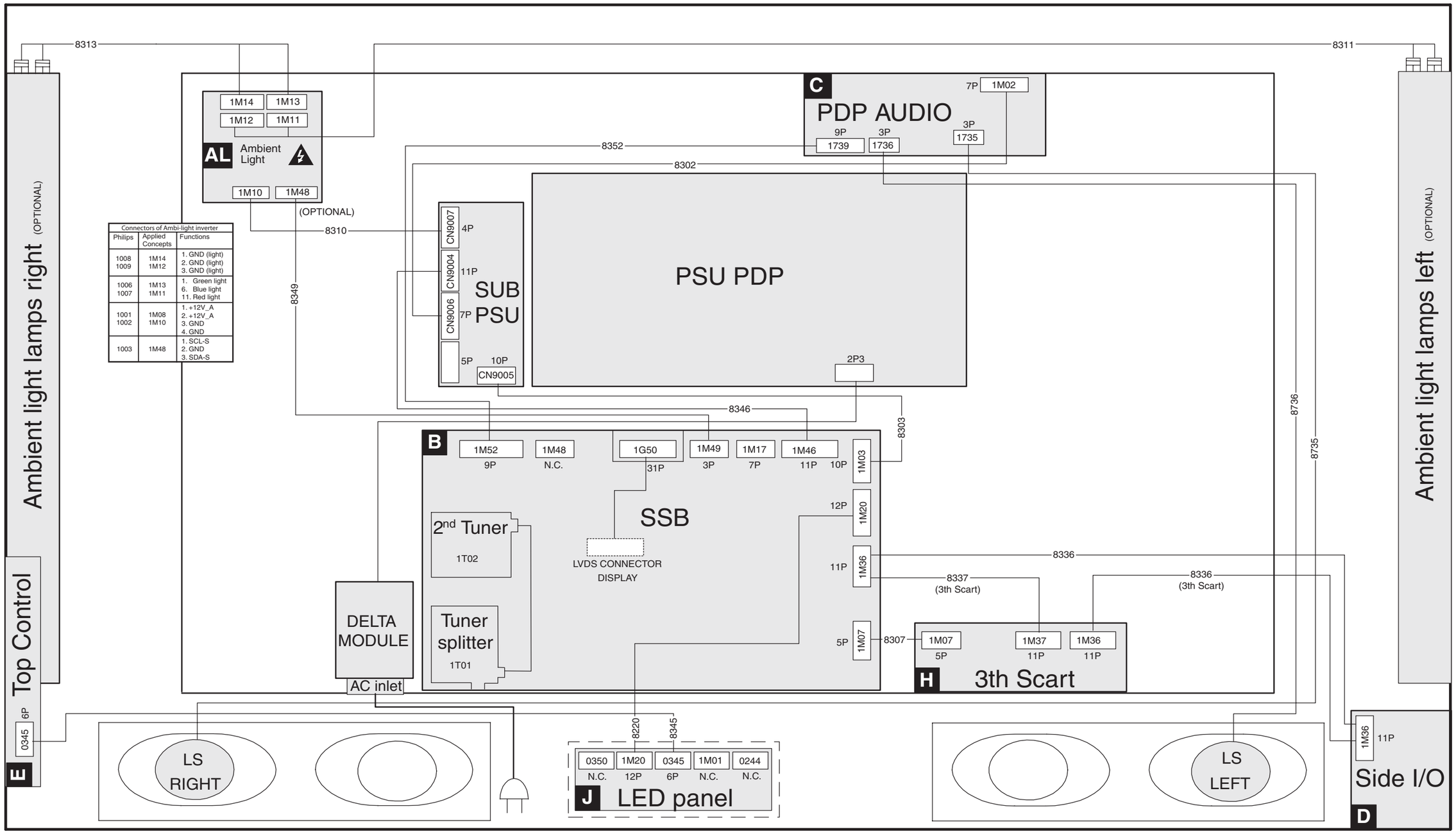
Wiring Diagram 42-50 Inch SDI

WIRING 42", 50" SDI



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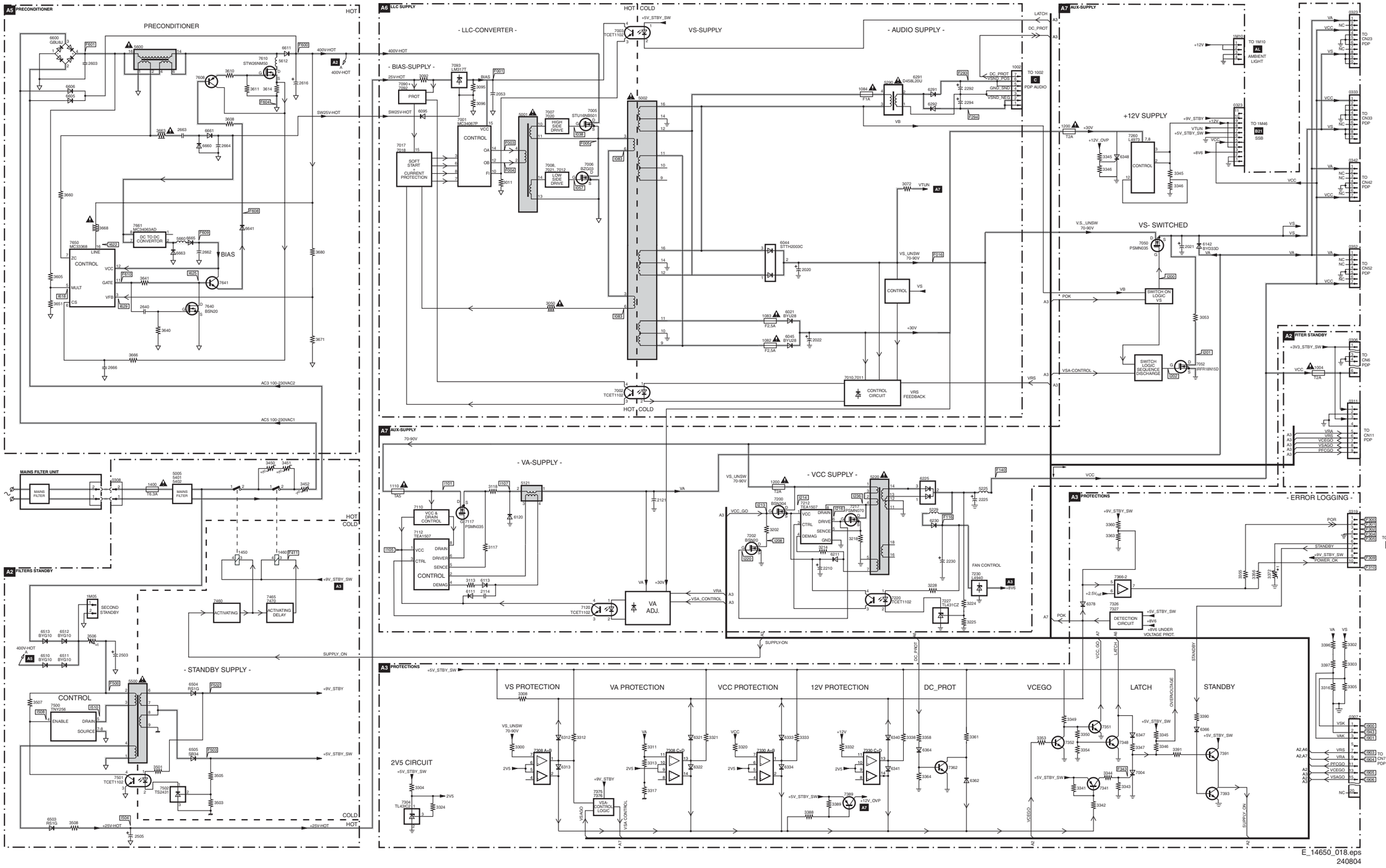
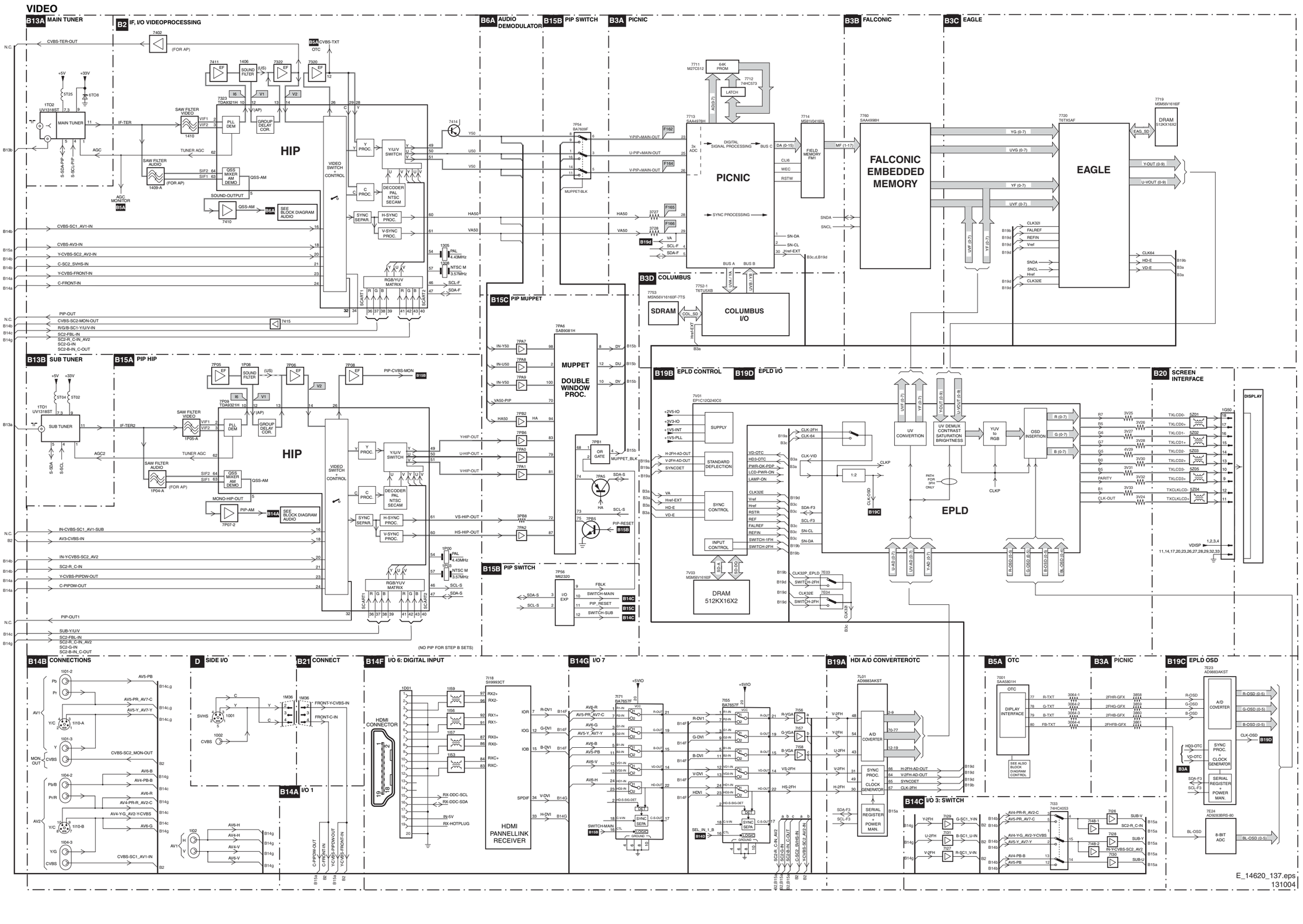
Block Diagram Supply + Standby 42 Inch FHP

SUPPLY 42" FHP

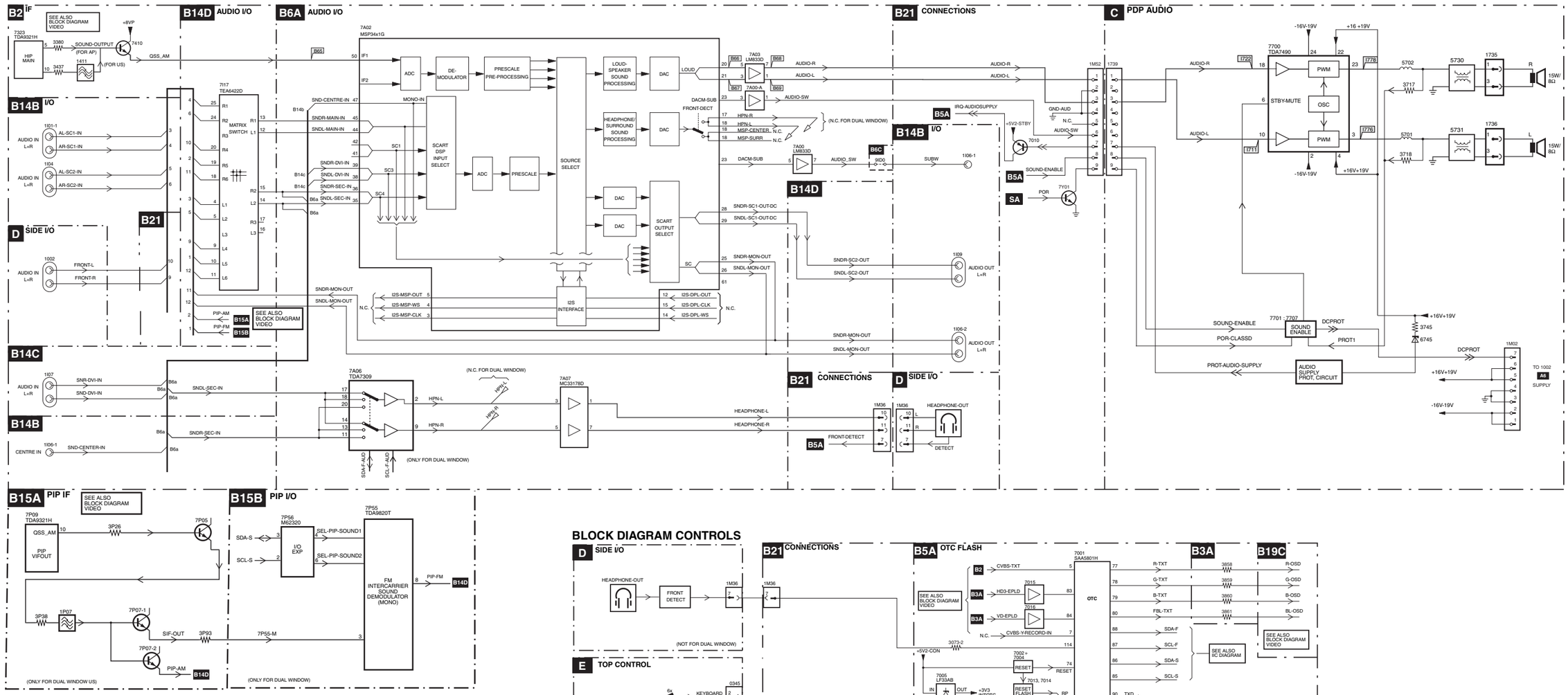


Block Diagram Video

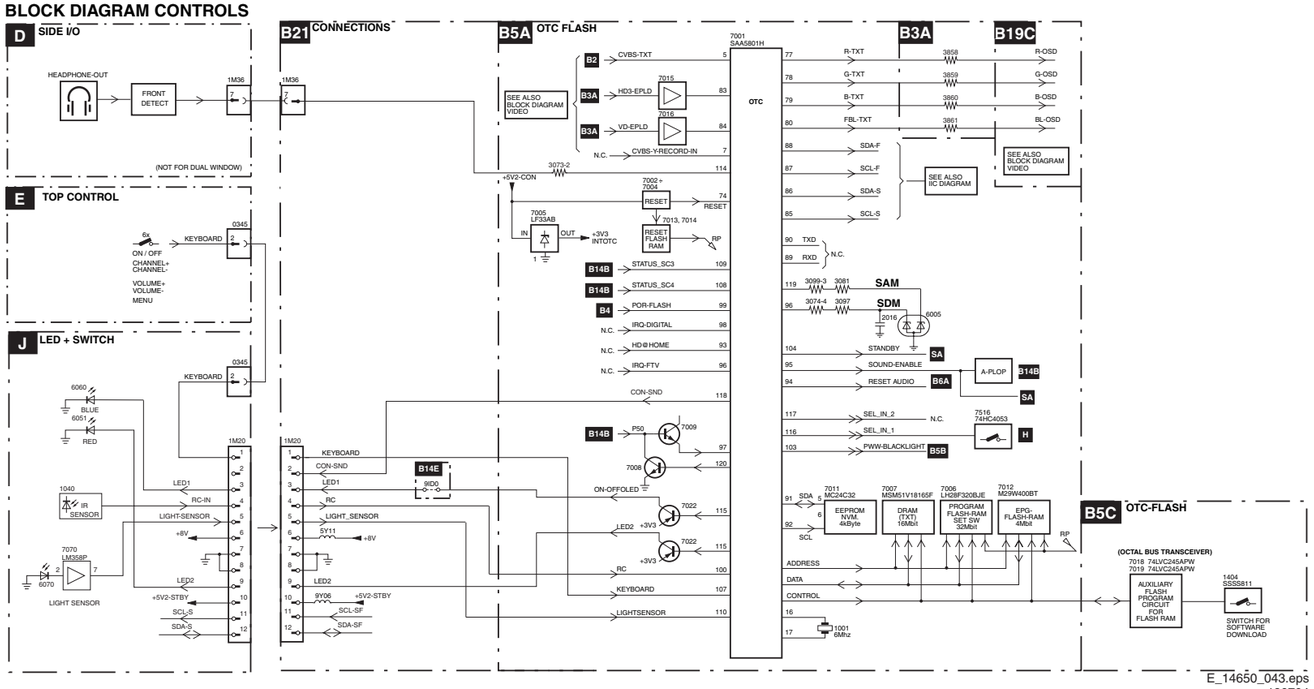


Block Diagram Audio

AUDIO



BLOCK DIAGRAM CONTROLS



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I²C IC's Overview

IIC

B5 OTC
+5V2_CON
3069 3079
3064-4 3064-3
88 87
SDA-F SCL-F
ERR 18
7001 SAA5801H SET PROCESSOR
+3V3-INTOTC
3001 3002
91 SDA
92 SCL
5 6
7011 M24C32 (NVM) EEPROM ERR 1

B6A AUDIO DEMODULATOR
3A17 3A19
SDA-F-AUD
SCL-F-AUD
2 1
7A02 MSP3421 AUDIO DEMODUL ERR 14
4 5
7A06 TDA7309 AUDIO DECODER ERR 82

B2 I/O, VIDEO PROCESSING
3377 3376
47 46
7323 TDA9321H HIP ERR 8

SDA-F SCL-F

B3A PICNIC
3710 3709
SDA-D SCL-D
SDA-EPLD SCL-EPLD
3826 3827
5 4
7713 SAA4978H PICNIC ERR 3
+5V2Pr
3758
1 2

B3D COLUMBUS
SN-DA SN-CL
9817 9818 9815 9816
A15 B15 C14 D14
7752-2 T6TU5XB COLUMBUS CTRL ERR 35

B3C EAGLE
9757 9755
33 24
7720 T6TX5AF EAGLE1C ERR 27

B3B FALCONIC
34 41
7760 SAA4998H/V1 FEM ERR 26

B19B EPLD CONTROL
+3V3-EPLD
7E10 PCA9515DP
8 VCC
3 6 2 7
3E69 3E70
I2C BUFFER
9E57 RES
9E58 RES

B19A HDI A/D CONVERTER
3L06 3L03
57 56
7L01 AD9883AKST A/D COVERTER ERR 53

B19C EPLD OSD
3E18 3E19
57 56
7E23 AD9883AKST A/D COVERTER ERR 53

B19D EPLD I/0
3V38 3V37
2 1
7V01-4 EP1C12F256C8 BANK3 ERR 56
AL-CL-IN
AL-DA-IN
+3V3-IO
+5V
3V50 3V51 3V52
3V55 3V54 3V53
7V04-1
7V04-2

B21 CONNECTIONS
AL-CL
AL-DA
1M49
1 2 3
TO CON2
AL
AMBI LIGHT

SDA-F3 SCL-F3

+5V2_CON
3088 3092
3064-2 3064-1
86 85
SDA-S SCL-S
ERR 6

B14D I/O4 AUDIO
3IJ0 3IJ1
28 27
7I17 TEA6422D BUS DECODER ERR 21

B15A PIP HIP
3P23 3P22
47 46
7P09 TDA9321H HIP ERR 34

B15B PIP SWITCH
3P66 3P65 3P81 3P79
3 2 14 15
7P56 M62320 I/O EXPANDER ERR 21
7P51 Z86130 V-CHIP (US ONLY) ERR 25

B15C PIP MUPPET
7PA5
HA
74 73
7PA6 SAB9081H MUPPET ERR 24

B14E I/O5
3IS9 3IS8
SDA-SF SCL-SF
1M15
1 2 3
COMPAIR SERVICE CONNECTOR

ADDRESS
DATA
CONTROL
7006 LH28F320BJE PROGRAM FLASH-RAM
7007 MSM51V18165F DRAM (TXT)
7012 M29W400BT ERR 32

B14E I/O5
+3V3_SIM
7I10 PCA9515DP
8 VCC
3 6 2 7
3IB3 3IB1
9I06 RES
9I05 RES

B20 SCREEN INTERFACE
SDA-DISP SCL-DISP
3Z51 3Z50
1G50
31 30
TO DISPLAY

B13A MAIN TUNER
+5V
7T50 P82B96TD
8 VCC
1 3 7 2 5 6
3T05 3T06
RES
9T50
9T12
9T08 9T07
5 4
1T01 UV1318ST MAIN TUNER ERR 13

B13B SUB TUNER
S-SDA-PIP
S-SCL-PIP
9T10 9T09
5 4
1T02 UV1318S SUB TUNER ERR 23

B21 CONNECTIONS
1M20
11 12
SDA-SF SCL-SF
3Y09 3Y40
LED SWITCH PANEL (ITV)

SDA-S SCL-S

B14F I/O6 DIGITAL INPUT
0VCC
7I72
9I55 9I56
7I59
75 74
7I18 SII9993CT100 HDMI PANNELLINK RECEIVER ERR 43
1 2 18 19

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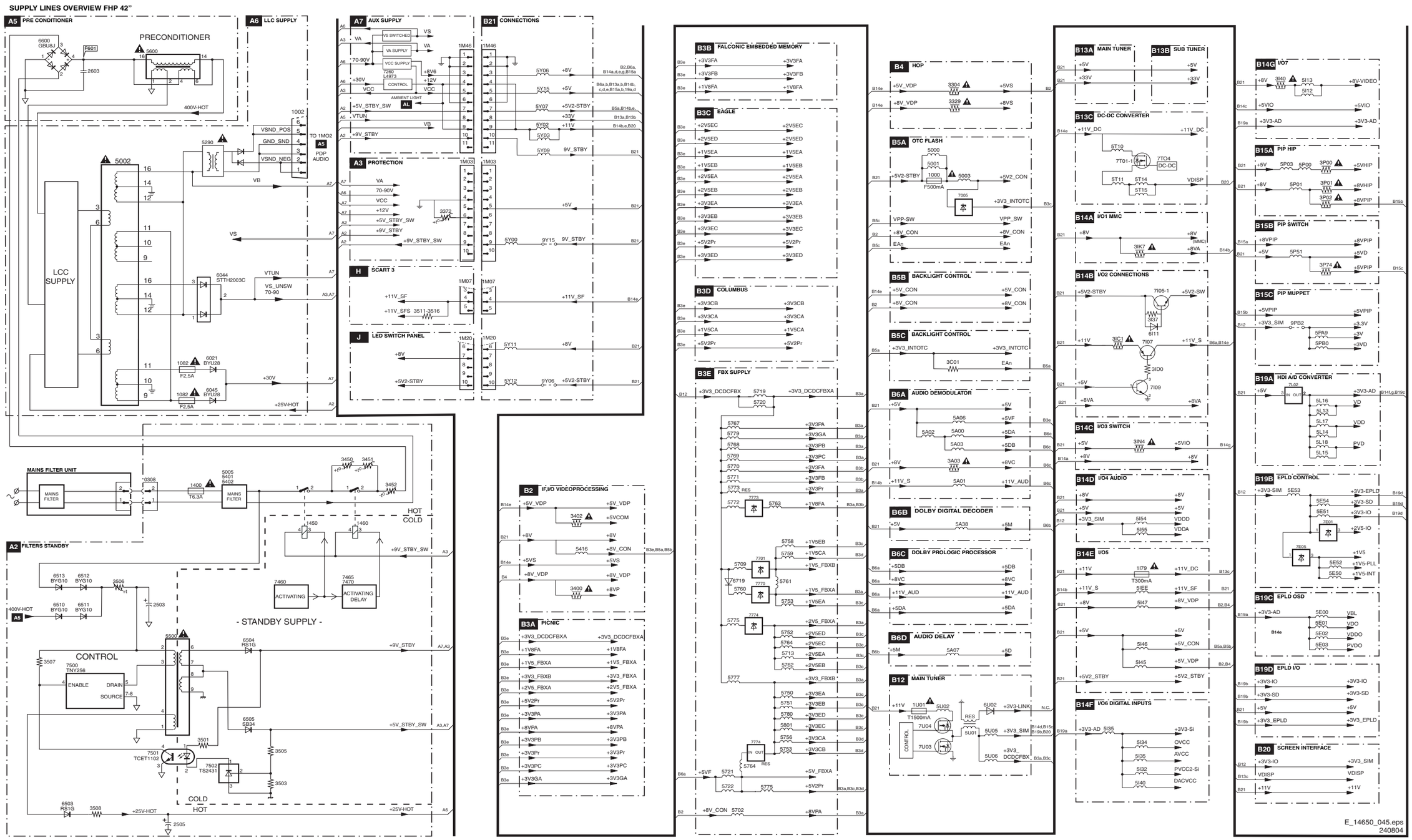
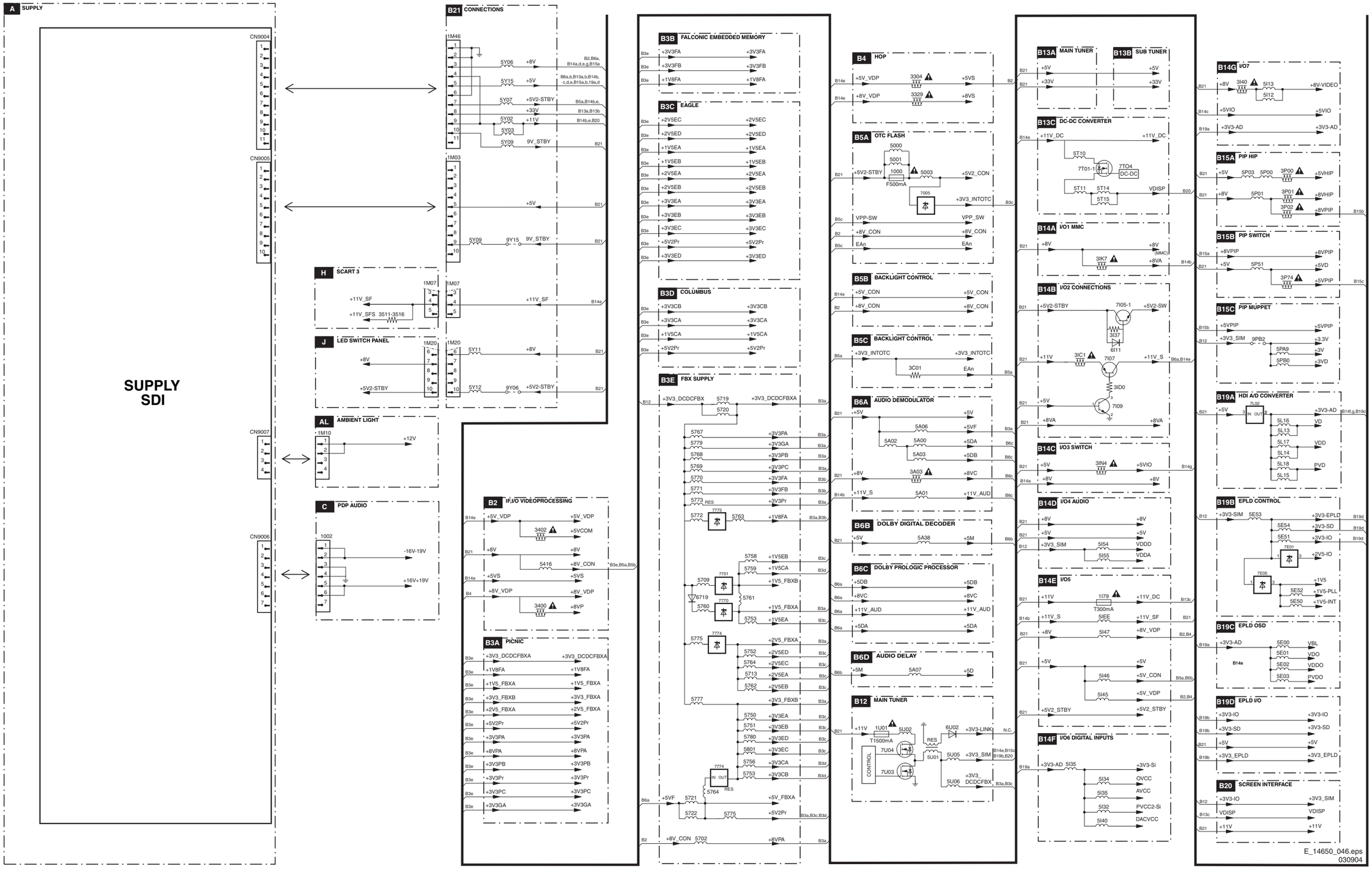
Supply Lines Overview FHP



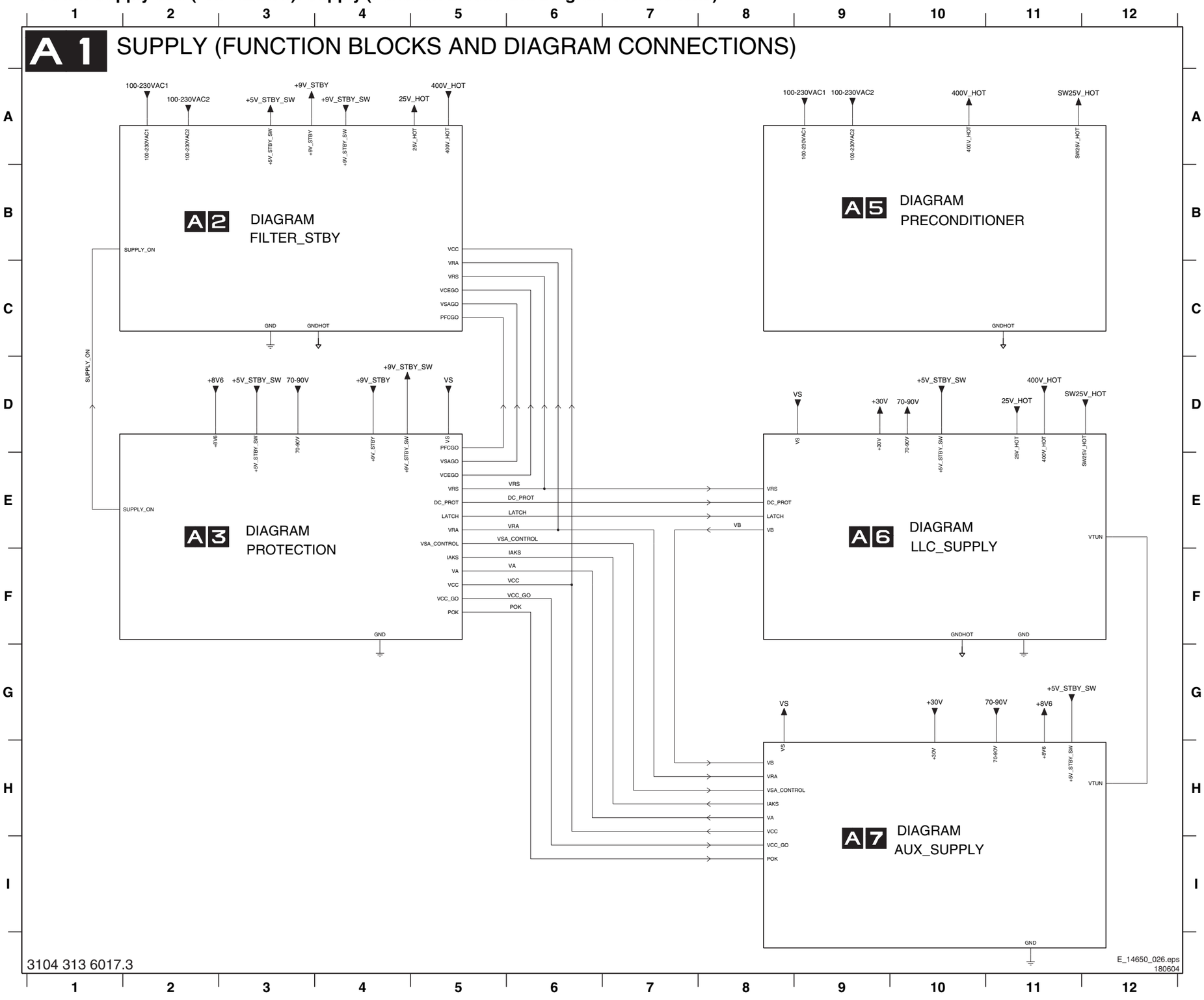
Supply Lines Overview SDI

SUPPLY LINES OVERVIEW SDI 42" / 50"

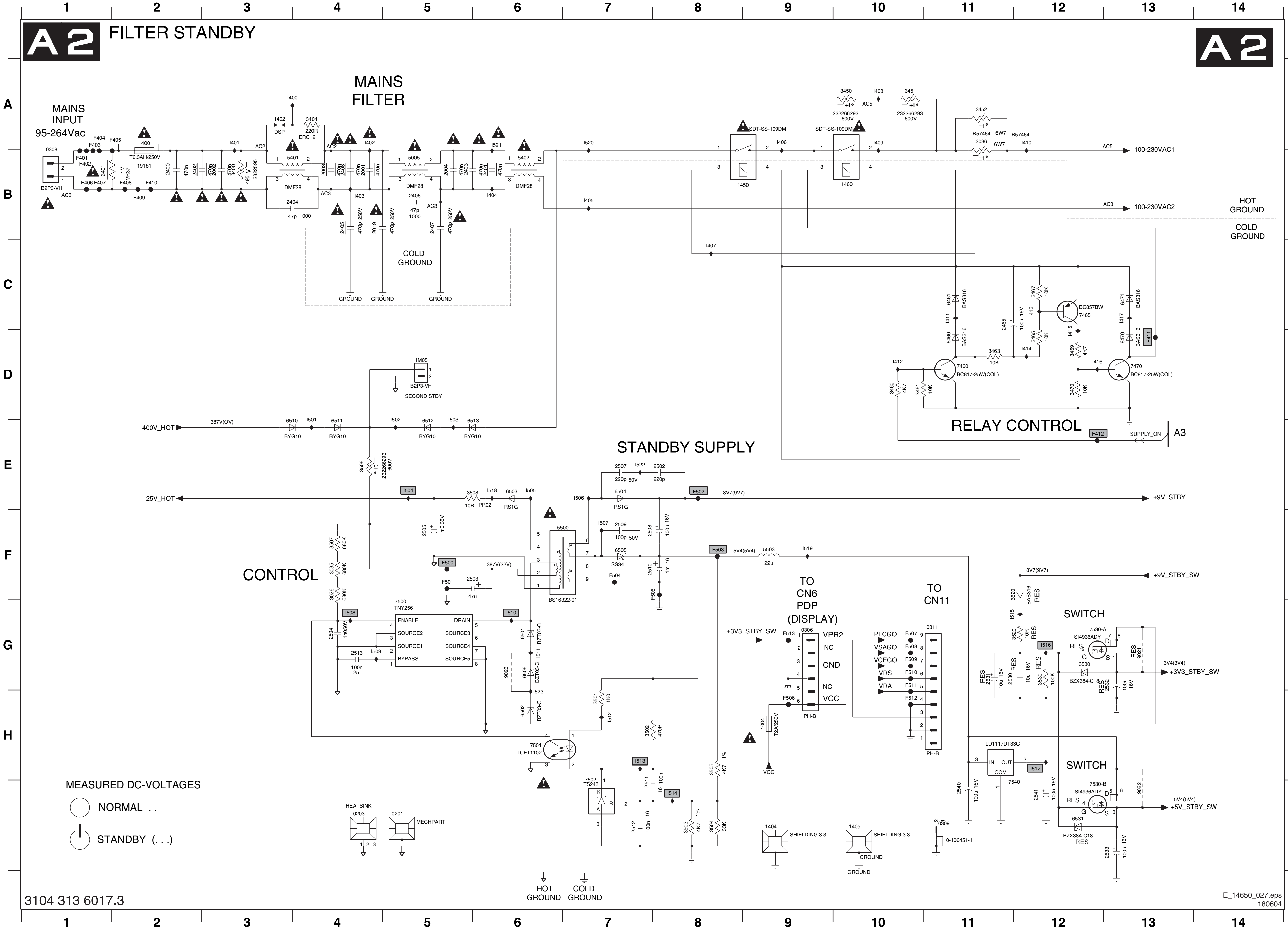


7. Circuit Diagrams and PWB Layouts

Power Supply Unit (FHP 42 Inch): Supply (Function Blocks and Diagram Connections)



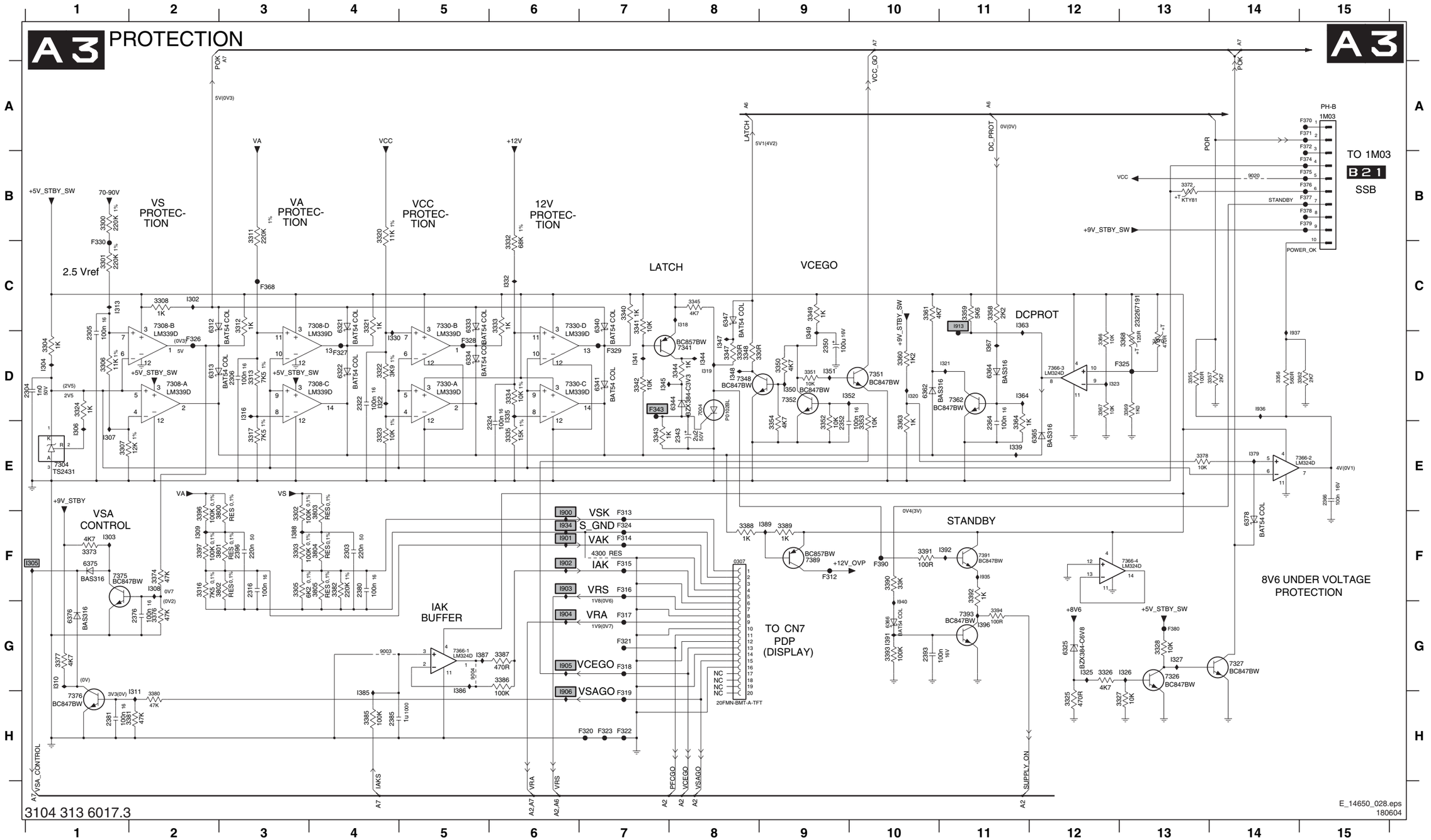
Power Supply Unit (FHP 42 Inch): Filter Standby



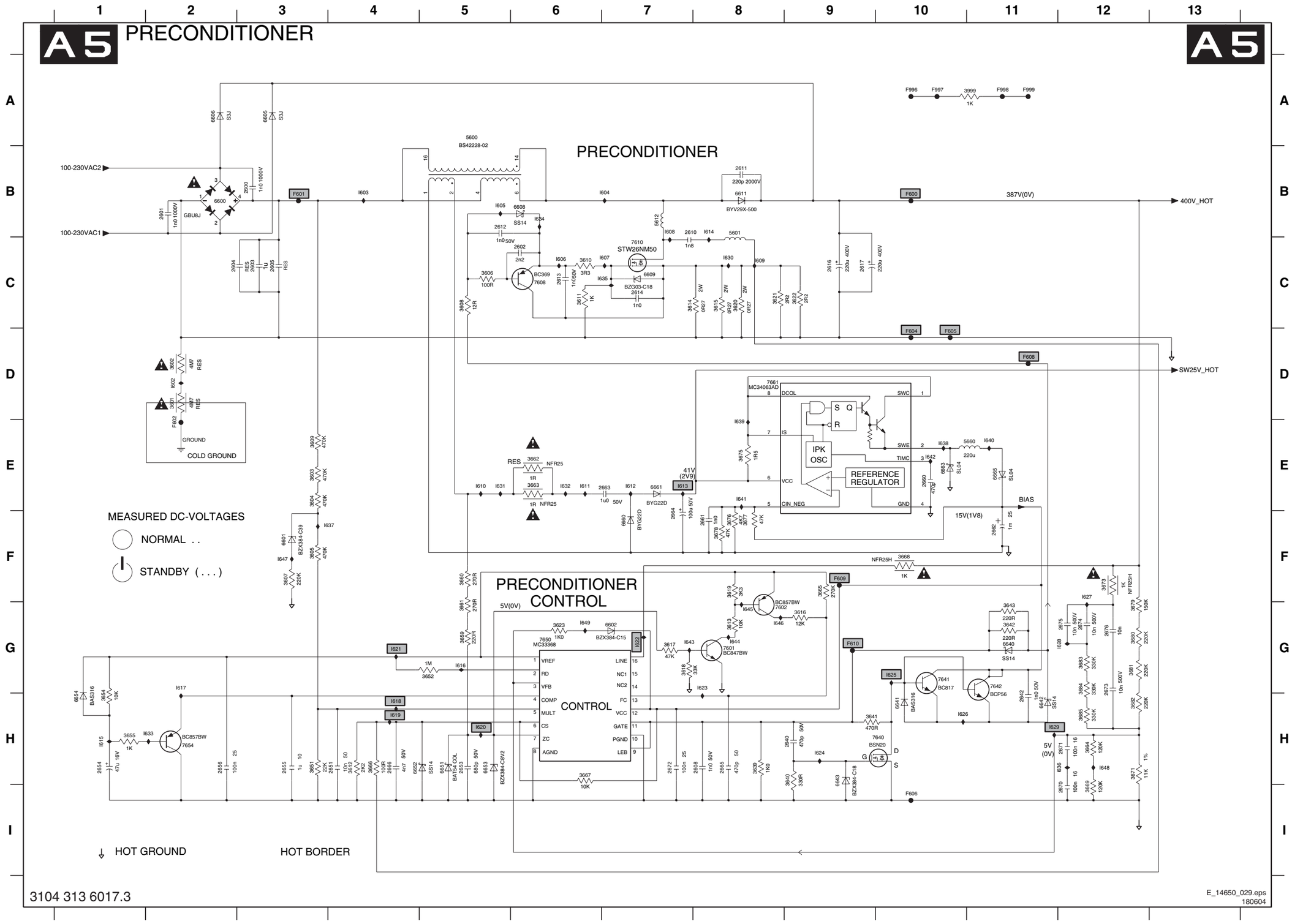
0201 I5
0203 I4
0306 G9
0308 A1
0309 I11
0311 G11
1004 H9
1400 A2
1402 A3
1404 I9
1405 I10
1450 B9
1460 B10
1M05 D5
2001 B4
2002 B3
2003 B4
2004 B5
2019 B4
2400 B2
2401 B6
2402 B2
2403 B5
2404 B4
2405 B4
2406 B5
2407 B5
2408 B4
2465 C11
2502 E8
2503 F6
2504 G4
2505 F5
2507 E7
2508 F7
2509 F7
2510 F7
2511 I7
2512 I7
2513 G4
2530 G11
2531 G11
2532 G13
2533 I13
2540 I11
2541 I12
3026 F4
3035 F4
3036 A11
3400 B3
3401 B1
3404 A4
3450 A10
3451 A10
3452 A11
3460 D10
3461 D10
3463 D11
3465 D12
3467 C12
3469 D12
3470 D12
3501 H7
3502 H7
3503 I8
3504 I8
3505 H8
3506 E4
3507 F4
3508 E6
3520 G12
3530 G12
5005 B5
5401 B4
5402 B6
5500 F7
5503 F9
6460 D11
6461 C11
6470 D13
6471 C13
6501 G6
6502 H6
6503 E6
6504 E7
6505 F7
6506 G6
6510 E3
6511 E4
6512 E5
6513 E6
6520 F12
6530 G12
6531 I12
7460 D11
7465 C12
7470 D13
7500 F5
7501 H6
7502 H7
7530-A G12
7530-B I12
7540 I12
9021 G13
9022 I13
9023 G6
F401 B1
F402 B1
F403 A1
F404 A1
F405 A2
F406 B1
F407 B1
F408 B2
F409 B2
F410 B2
F411 D13
F412 E12
F500 F5
F501 F5
F502 E8
F503 F8
F504 F7
F505 F8
F506 H9
F507 G10
F508 G10
F509 G10
F510 G10
F511 G10
F512 H10
F513 G9
I400 A4
I401 A3
I402 A4
I403 B4
I404 B6
I405 B7
I406 A9
I407 C8
I408 A10
I409 A10
I410 A12
I411 C11
I412 D10
I413 C12
I414 D12
I415 D12
I416 D12
I417 C13
I501 D4
I502 D5
I503 D5
I504 E5
I505 E6
I506 E7
I507 F7
I508 G4
I509 G4
I510 G6
I511 G6
I512 H7
I513 H7
I514 I8
I515 G11
I516 G12
I517 H12
I518 E6
I519 F9
I520 A7
I521 A6
I522 E7
I523 H6

Power Supply Unit (FHP 42 Inch): Protection

0307 F8	2343 E8	2393 G10	3307 E1	3322 D4	3334 D6	3348 D8	3357 D14	3367 D12	3378 E13	3390 F10	3802 F3	6325 G12	6365 E12	7308-C D3	7348 D8	7376 H1	F314 F7	F323 H7	F368 C3	F379 B15	I308 F2	I321 D11	I339 E11	I352 D9	I389 F9	I905 G6
1M03 A15	2350 D9	2396 F3	3308 C2	3323 E4	3335 E6	3349 C9	3358 C11	3368 D13	3380 H2	3391 F10	3803 F4	6333 C5	6366 G10	7308-D C3	7351 D10	7389 F9	F315 F7	F324 F7	F325 D13	F370 A15	F380 G13	I309 F2	I322 D4	I341 D7	I363 C11	I391 G10	I906 H6
2303 F4	2352 E9	3300 B1	3311 B3	3324 D1	3340 C7	3350 D9	3359 C11	3369 D13	3381 H2	3392 F11	3804 F4	6334 D5	6375 F1	7326 G13	7352 D9	7391 F11	F316 F7	F325 D13	F371 A15	F390 F10	I310 G1	I323 D12	I344 D8	I364 D11	I392 F11	I913 C11	
2304 D1	2364 E11	3301 C1	3312 C3	3325 H12	3341 C7	3351 D9	3360 D10	3370 D13	3382 F4	3393 G10	3805 F4	6340 C7	6376 G1	7327 G14	7362 D11	7393 G11	F317 G7	F326 D2	F372 A15	I302 C2	I311 H2	I325 G12	I345 D7	I367 D11	I396 G11		
2305 D1	2366 E15	3302 F3	3313 D3	3326 G12	3342 D7	3352 E9	3361 C10	3372 B13	3385 H4	3394 G11	4300 F7	6341 D7	6378 F14	7330-A D5	7366-1 G5	9003 G4	F318 G7	F327 D4	F374 B15	I303 F1	I313 C1	I326 G13	I347 D8	I379 E14	I900 F6	I935 F11	
2306 D3	2376 G2	3303 F3	3316 F2	3327 H13	3343 E7	3353 E10	3362 D15	3373 F1	3386 G6	3396 F2	6312 C2	6344 D8	7004 D8	7330-B C5	7366-2 E14	9004 G5	F319 H7	F328 D5	F375 B15	I304 D1	I316 D3	I327 G13	I348 D8	I385 H4	I901 F6	I936 D14	
2316 F3	2380 F4	3304 D1	3317 E3	3328 G13	3344 D8	3354 E9	3363 E10	3374 F2	3387 G6	3397 F2	6313 D2	6347 C8	7304 E1	7330-C D6	7366-3 D12	9020 B14	F320 H7	F329 D7	F376 B15	I305 F1	I318 C8	I330 D4	I349 D9	I386 G5	I902 F6	I937 D14	
2322 D4	2381 H1	3305 F3	3320 B4	3332 C6	3345 C8	3355 D13	3364 E11	3376 G2	3388 F8	3800 F3	6321 C4	6362 D10	7308-A D2	7330-D C6	7366-4 F13	F312 F9	F321 G7	F330 C1	F377 B15	I306 E1	I319 D8	I332 C6	I350 D9	I387 G5	I903 F6	I940 G10	
2324 E6	2385 H4	3306 D1	3321 C4	3333 C6	3347 D8	3356 D14	3366 D12	3377 G1	3389 F9	3801 F3	6322 D4	6364 D11	7308-B C2	7341 D8	7375 F1	F313 F7	F322 H7	F343 D7	F378 B15	I307 E1	I320 D10	I335 D6	I351 D9	I388 F3	I904 G6		



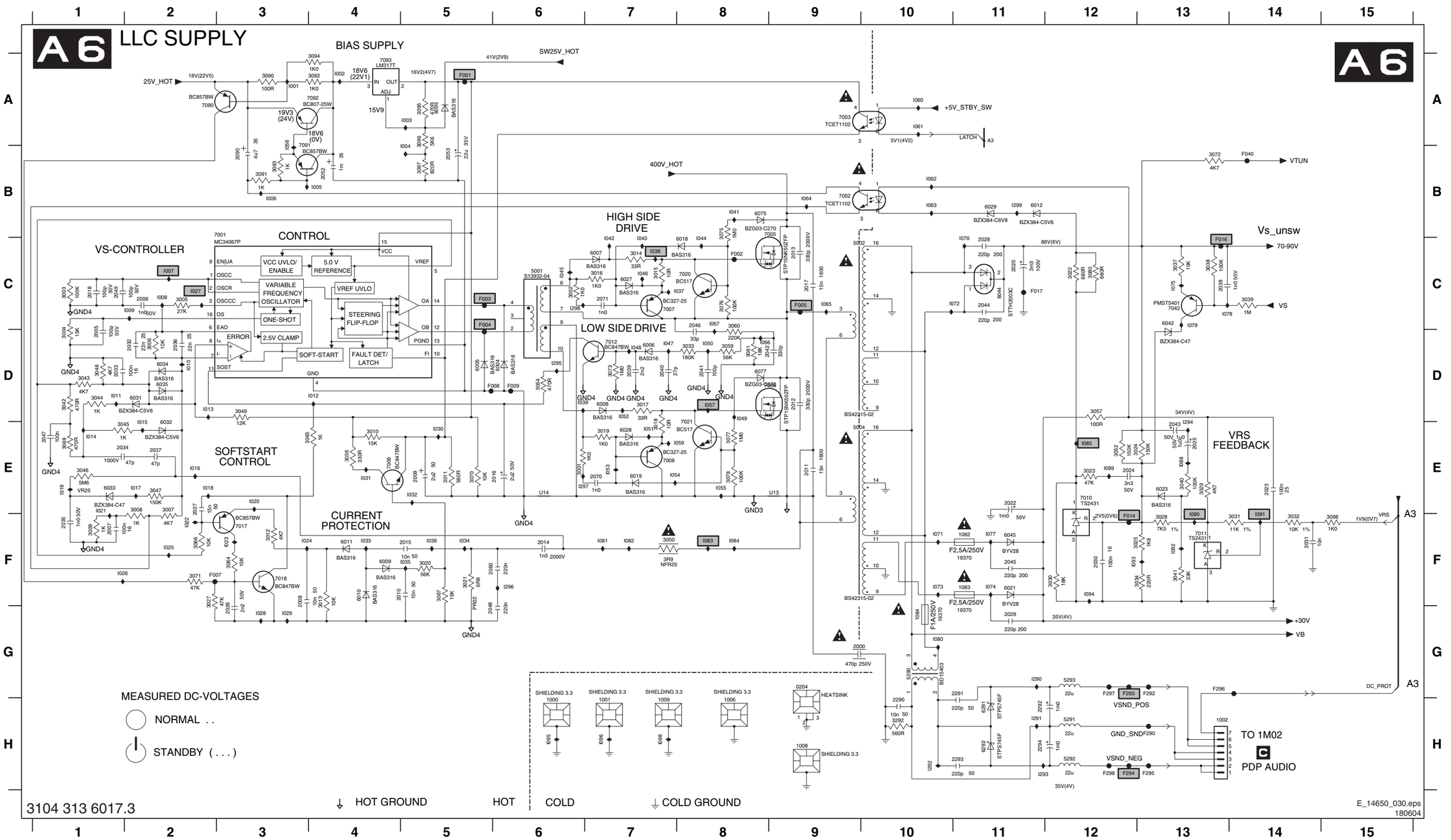
Power Supply Unit (FHP 42 Inch): Preconditioner



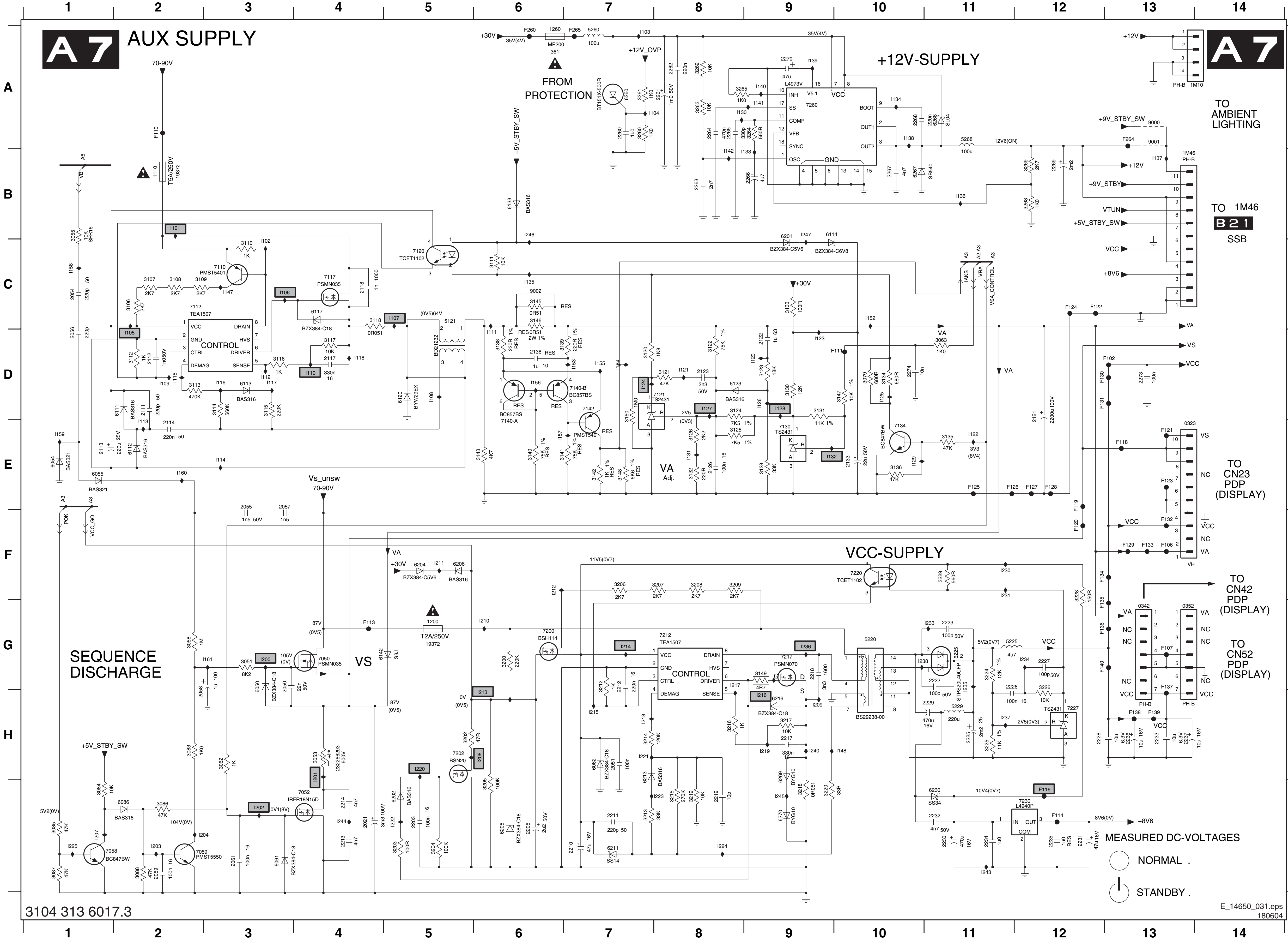
2600	B3	6665	E11
2601	B2	7601	G8
2602	C6	7602	G8
2603	C3	7608	C6
2604	C2	7610	C7
2605	C3	7640	H10
2608	H8	7641	G10
2610	B7	7642	G11
2611	B8	7650	G6
2612	B5	7654	H2
2613	C6	7661	D8
2614	C7	F600	B10
2616	C9	F601	B3
2617	C9	F602	E2
2640	H9	F604	D10
2642	H11	F605	D10
2651	H4	F606	I10
2653	H5	F608	D11
2654	H1	F609	F9
2655	H3	F610	G9
2656	H2	F996	A10
2660	E10	F997	A10
2661	F8	F998	A11
2662	F11	F999	A11
2663	E7	I602	D2
2664	F7	I603	B4
2665	H8	I604	B7
2666	H4	I605	B5
2670	I12	I606	C6
2671	H12	I607	C7
2672	H7	I608	B7
2673	G12	I609	C8
2674	G12	I610	E5
2675	G12	I611	E6
2676	G12	I612	E7
3601	D2	I613	E7
3602	D2	I614	B8
3603	E3	I615	H1
3604	E3	I616	G5
3605	F3	I617	G2
3606	C5	I618	H4
3607	F3	I619	H4
3608	C5	I620	H5
3609	E3	I621	G4
3610	C6	I622	G7
3611	C6	I623	G8
3612	H4	I624	H9
3613	G8	I625	G10
3614	C7	I626	H10
3615	C8	I627	F12
3616	G9	I628	G12
3617	G7	I629	H11
3618	G7	I630	C8
3619	F8	I631	E5
3620	C8	I632	E6
3621	C8	I633	H2
3622	C9	I634	B6
3623	G6	I635	C7
3639	H8	I636	H12
3640	H9	I637	F4
3641	H9	I638	E10
3642	G11	I639	E8
3643	G11	I640	E11
3651	H3	I641	E8
3652	G5	I642	E10
3654	H1	I643	G7
3655	H1	I644	G8
3659	G5	I645	G8
3660	F5	I646	G8
3661	G5	I647	F3
3662	E6	I648	H12
3663	E6	I649	G6
3664	H12		
3665	F9		
3666	H4		
3667	H6		
3668	F10		
3669	I12		
3671	H12		
3673	F12		
3675	E8		
3676	F8		
3677	F8		
3678	F8		
3679	G12		
3680	G12		
3681	G12		
3682	H12		
3683	G12		
3684	G12		
3685	H12		
3999	A11		
5600	A5		
5601	B8		
5612	B7		
5660	E11		
6600	B2		
6601	F3		
6602	G7		
6605	A3		
6606	A2		
6608	B6		
6609	C7		
6611	B8		
6640	G11		
6641	H10		
6642	H11		
6643	H9		
6651	H5		
6652	H4		
6653	H5		
6654	H1		
6660	F7		
6661	E7		
6663	E10		

Power Supply Unit (FHP 42 Inch): LLC Supply

U13 E9	1082 F11	2010 F4	2020 C11	2030 F12	2039 D7	2048 G5	2291 G11	3006 D2	3015 C7	3024 E13	3034 F13	3045 E1	3057 D12	3070 E5	3090 A3	3292 H10	6005 D5	6019 E7	6034 D2	6292 H11	7010 E12	7091 B4	F008 D6	F294 H12	I005 B4	I014 E1	I023 F3	I032 E5	I042 C7	I051 E7	I061 A10	I072 C11	I082 F7	I093 F12	I294 E13
U14 E6	1083 F11	2011 E9	2022 E11	2031 F14	2040 D7	2049 C1	2292 H11	3007 E2	3016 C7	3025 F13	3037 C13	3046 E1	3059 D8	3071 F2	3091 B3	5001 C6	6006 D7	6021 F11	6035 D2	7001 B2	7011 F13	7092 A4	F009 D6	F295 H13	I006 B3	I015 E2	I024 F3	I033 F4	I043 C7	I052 D7	I062 B10	I073 F10	I083 F8	I094 F12	I295 D6
0204 G9	1084 G10	2012 D9	2023 E14	2032 D2	2041 D8	2052 B4	2293 H11	3008 E2	3017 D7	3027 F2	3038 C13	3047 E2	3060 C8	3072 B13	3092 A4	5002 C9	6007 C7	6023 E13	6042 C13	7002 B9	7012 D7	7093 A4	F014 F12	F296 G13	I007 C2	I016 E2	I025 F2	I034 F5	I044 C8	I053 E7	I063 B10	I074 F11	I084 F8	I095 H6	I296 F6
1000 H6	2000 G9	2013 C9	2024 E12	2033 D1	2042 D9	2053 B5	2294 H11	3009 F1	3018 E7	3028 F13	3039 C14	3048 D1	3061 D8	3073 D7	3093 B3	5004 E9	6008 D7	6027 C7	6044 C11	7003 A9	7017 F3	F001 A5	F016 C13	F297 G12	I008 C2	I017 E2	I026 F1	I035 F5	I045 C6	I054 E7	I064 B9	I075 C13	I085 E12	I096 H7	I297 E6
1001 H7	2005 D1	2014 F6	2025 E13	2034 E1	2043 E13	2060 F5	3001 E6	3010 E4	3019 E7	3029 E13	3040 E13	3049 D3	3064 F3	3075 B8	3094 A4	5290 G10	6009 F4	6028 E7	6045 F11	7005 B8	7018 F3	F002 C8	F017 C11	F298 H12	I009 C2	I018 E2	I027 C2	I036 F5	I046 C7	I055 E8	I065 C9	I077 F11	I088 E13	I098 H7	I298 C6
1002 H13	2006 C2	2015 F5	2026 G3	2035 F1	2044 C11	2070 E7	3002 C6	3011 E5	3020 F5	3030 F12	3041 F13	3050 F7	3065 E4	3076 C8	3095 A5	5291 H12	6010 F4	6029 B11	6075 B8	7006 D8	7020 C8	F003 C5	F040 B14	I001 A3	I010 D2	I019 E1	I028 G3	I037 C8	I047 D7	I056 A3	I066 D8	I078 C13	I089 E12	I290 G11	I299 B11
1006 H8	2007 F1	2016 E6	2027 E2	2036 D2	2045 F11	2071 C7	3003 C1	3012 F3	3021 F5	3031 F14	3042 D1	3052 E12	3066 F2	3077 E8	3096 A5	5292 H12	6011 F4	6031 D2	6077 D8	7007 C7	7021 E8	F004 C5	F290 H13	I002 A4	I011 D1	I020 E3	I029 G3	I038 C7	I048 D7	I057 D8	I067 C8	I079 C13	I090 F13	I291 H11	
1008 H9	2008 F3	2017 C9	2028 C11	2037 E2	2046 C8	2090 B3	3004 D1	3013 F4	3022 C12	3032 F14	3043 D1	3054 D6	3067 F5	3078 E8	3097 B5	5293 G12	6012 B11	6032 E2	6095 A5	7008 E7	7042 C13	F005 C9	F292 G13	I003 A5	I012 D4	I021 E1	I030 E5	I039 D6	I049 D8	I059 E8	I070 C11	I080 G10	I091 F14	I292 H10	
1009 H7	2009 E5	2018 C1	2029 G11	2038 C13	2047 E1	2290 H10	3005 C2	3014 C7	3023 E12	3033 D8	3044 D1	3056 E4	3069 E1	3080 C12	3098 F15	6004 D6	6018 C8	6033 E1	6291 H11	7009 E4	7090 A2	F007 F2	F293 G12	I004 B5	I013 D2	I022 F2	I031 E4	I041 B8	I050 D8	I060 A10	I071 F10	I081 F7	I092 F13	I293 H11	



Power Supply Unit (FHP 42 Inch): Aux Supply



0323 E13	3147 D10	F131 D12
0342 G13	3148 E7	F132 F13
0352 G13	3149 G9	F133 F13
1110 B2	3150 D7	F134 F12
1200 G5	3200 G6	F135 G12
1260 A6	3202 H5	F136 G12
1M10 A14	3203 I5	F137 G13
1M46 B13	3204 I5	F138 H13
2021 I4	3205 I6	F139 H13
2050 G3	3206 F7	F140 G12
2051 H7	3207 F8	F260 A6
2054 C1	3208 F8	F264 A13
2055 E3	3209 F8	F265 A7
2056 D1	3212 G7	I101 B2
2057 E3	3213 I7	I102 C3
2058 H2	3214 H7	I103 A7
2059 I2	3215 I8	I104 A8
2061 I3	3216 H8	I105 D2
2111 D2	3217 H9	I106 C3
2112 D2	3218 I9	I107 C5
2113 E1	3219 I8	I108 D5
2114 E2	3220 I9	I109 D2
2117 D4	3224 G11	I110 D4
2118 C4	3225 H11	I111 D6
2121 D12	3226 G12	I112 D3
2122 D9	3228 F12	I113 E2
2123 D8	3229 F11	I114 E3
2126 E8	3260 A7	I115 D2
2133 E10	3261 A7	I116 D3
2138 D6	3262 A8	I117 D3
2203 I5	3263 A8	I118 D4
2205 I6	3264 A9	I120 D9
2210 I7	3265 A8	I121 D8
2211 I7	3268 B12	I122 E11
2212 G7	3269 B12	I123 D9
2213 I4	5121 C5	I124 D7
2214 I4	5220 G10	I125 D10
2217 H9	5225 G11	I126 D9
2218 G9	5229 H11	I127 D8
2219 I8	5260 A7	I128 D9
2222 G11	5268 A11	I129 E10
2223 G11	6050 G3	I130 A8
2225 H11	6054 E1	I131 E8
2226 G11	6055 E1	I132 E9
2227 G12	6061 I3	I133 B9
2228 H12	6062 H7	I134 A10
2229 H11	6086 I2	I135 C6
2230 I11	6111 D2	I136 B11
2231 I12	6112 E2	I137 B13
2232 I11	6113 D3	I138 A10
2233 H13	6114 B9	I139 A9
2234 I11	6117 C4	I140 A9
2235 I12	6120 D5	I141 A9
2236 H13	6123 D8	I142 B8
2237 H13	6133 B6	I147 C3
2260 A7	6142 G4	I148 H10
2261 A8	6201 B9	I152 C10
2262 A8	6202 I5	I153 D7
2263 B8	6204 F5	I154 D7
2264 A8	6205 I6	I155 D7
2265 A8	6206 F5	I156 D6
2266 B9	6211 I7	I157 E6
2267 B10	6213 H7	I158 C1
2268 A10	6216 H9	I159 E1
2269 B12	6225 G11	I160 E2
2270 A9	6230 I11	I161 G3
2273 D13	6260 A7	I200 G3
2274 D10	6267 B10	I201 H4
3051 G3	6268 A11	I202 I3
3053 H4	6269 H9	I203 I2
3055 B1	6270 I9	I204 I3
3058 G2	7050 G4	I207 I1
3062 H3	7052 I4	I208 H6
3063 D11	7058 I1	I209 H9
3079 D10	7059 I2	I210 G6
3083 H2	7110 C3	I211 F5
3084 I1	7112 C2	I212 F6
3085 I1	7117 C4	I213 H6
3086 I2	7120 C5	I214 G7
3087 I1	7121 D8	I215 H7
3088 I2	7130 E9	I216 H9
3106 C2	7134 E10	I217 G8
3107 C2	7140-A D6	I218 H7
3108 C2	7140-B D7	I219 H9
3109 C2	7142 D7	I220 H5
3110 C3	7200 G6	I221 H7
3111 C6	7202 H5	I222 I5
3112 D2	7212 G8	I223 I8
3113 D2	7217 G9	I224 I8
3114 D3	7220 F10	I225 I1
3115 D3	7227 H12	I230 F11
3116 D3	7230 I12	I231 F11
3117 D4	7260 A9	I233 G11
3118 C4	9000 A13	I234 G12
3120 D7	9001 A13	I235 G11
3121 D8	9002 C6	I236 G9
3122 D8	F102 D13	I237 H11
3123 D9	F106 F13	I238 G10
3124 D8	F107 G13	I240 H9
3125 E8	F110 A2	I243 I11
3126 E8	F111 D10	I244 I4
3128 E9	F113 G4	I245 I9
3130 D9	F114 I12	I246 B6
3131 D9	F116 I12	I247 B9
3132 E8	F118 E13	
3133 C9	F119 E12	
3134 D10	F120 F12	
3135 E11	F121 E13	
3136 E10	F122 C12	
3138 D6	F123 E13	
3139 D6	F124 C12	
3140 E6	F125 E11	
3141 E6	F126 E11	
3142 E7	F127 E12	
3143 E6	F128 E12	
3145 C6	F129 F13	
3146 C6	F130 D12	

Layout Power Supply Unit (FHP 42 Inch) (Overview Top Side)

0201	B4	1082	C8	1M46	G8	2012	A5	2025	E8	2038	D8	2051	F6	2090	B3	2203	F5	2226	E8	2261	G8	2291	B8	2352	G6	2404	F2	2510	F5	2603	B1
0203	D3	1083	B8	2000	A5	2013	C5	2026	A4	2039	B3	2052	A4	2111	D5	2205	F5	2227	E8	2262	G8	2292	A8	2364	G5	2405	E1	2511	G4	2604	C1
0204	D7	1084	A8	2001	E2	2014	B5	2027	A4	2040	B3	2053	A4	2112	D5	2210	F6	2228	E8	2263	G8	2293	C8	2366	G6	2406	E2	2512	G4	2605	C1
0306	G3	1110	D7	2002	F1	2015	A4	2028	C8	2041	B3	2054	D8	2113	D5	2211	F6	2229	E6	2264	G8	2294	A8	2376	G6	2407	D1	2513	G3	2608	A2
0307	G2	1200	E6	2003	E2	2016	A4	2029	C8	2042	B4	2055	D8	2114	D5	2212	F6	2230	E6	2265	G8	2303	G7	2380	G7	2408	E2	2530	G4	2610	C2
0308	G1	1260	F8	2004	E2	2017	C5	2030	E5	2043	E8	2056	D8	2117	D6	2213	D8	2231	E7	2266	G8	2304	G7	2381	G6	2465	E5	2531	G4	2611	C2
0309	G1	1400	F1	2005	A4	2018	A4	2031	E5	2044	C8	2057	D8	2118	C6	2214	D8	2232	E6	2267	G8	2305	G7	2385	G6	2502	F5	2532	G3	2612	B2
0311	G3	1402	F1	2006	A4	2019	E1	2032	A4	2045	C8	2058	D8	2121	C8	2217	F6	2233	E8	2268	G8	2306	G7	2393	G6	2503	F4	2533	G4	2613	B2
0323	F8	1450	F4	2007	A5	2020	B8	2033	A4	2046	B3	2059	D8	2122	E6	2218	E6	2234	E8	2269	F8	2316	G7	2396	G8	2504	G4	2540	G5	2614	B2
0342	F8	1460	E4	2008	A4	2021	D8	2034	B5	2047	A4	2060	A5	2123	D5	2219	F5	2235	E8	2270	G8	2322	G7	2400	F1	2505	B3	2541	G5	2616	D4
0352	E8	1M03	G5	2009	A4	2022	B8	2035	A5	2048	A5	2061	D8	2126	D6	2222	F8	2236	E8	2273	G8	2324	G7	2401	E1	2507	F5	2600	E2	2617	C4
1002	A8	1M05	G3	2010	A3	2023	E5	2036	A4	2049	A4	2070	B4	2133	E5	2223	F8	2237	E8	2274	D6	2343	G6	2402	F1	2508	F5	2601	D2	2640	A2
1004	F8	1M10	A8	2011	B5	2024	E5	2037	B5	2050	E8	2071	B4	2138	E6	2225	F8	2260	F8	2290	B8	2350	G7	2403	E1	2509	F5	2602	B2	2642	A2

2651	A3	2671	A3	3008	A5	3021	B5	3034	E5	3209	F5	3461	E5	6010	A4	7001	A4														
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2654	B2	2673	B2	3010	A3	3023	E5	3036	D1	3213	F6	3465	E5	6012	E5	7003	E5														
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2660	A2	2676	B2	3013	A4	3026	G4	3039	D8	3216	F6	3470	E5	6021	C8	7006	B5														
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2666	A2	3006	A4	3019	B4	3032	E5	3045	A4	3225	E8	3506	E4	6032	A4	7012	B3														
2670	A3	3007	A4	3020	A3	3033	B3	3046	A5	3226	E8	3507	F4	6033	A5	7017	A4														

3047	A4	3228	E8	3508	D4	6034	A4	7018	A4																						
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3063	D6	3305	G7	3614	C2	6113	D5	7121	D6																						
3064	A4	3306	G7	3615	C2	6114	D5	7130	D6																						
3065	A4	3307	G7	3616	B2	6117	D7	7134	D5																						
3066	A4	3308	G6	3617	A2	6120	D8	7140	E7																						
3067	A4	3311	F8	3618	A2	6123	D6	7142	E6																						
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3073	B3	3320	G7	3623	B3	6204	G6	7220	E8																						
3075	C4	3321	G7	3639	A2	6205	F5	7227	E8																						
3076	C4	3322	G7	3640	A2	6206	G6	7230	E8																						
3077	A5	3323	G7	3641	A2	6211	F6	7260	G8																						
3078	B4	3324	G7	3642	A2	6213	F5	7304	G7																						
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3083	D8	3327	G7	3652	B3	6230	E6	7327	G8																						
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3095	B4	3345	G6	3667	A2	6322	G7	7391	G5																						
3096	B4	3347	G6	3668	B2	6325	G7	7393	G6																						
3097	B4	3348	G6	3669	A3	6333	G7	7460	E5																						
3098	E5	3349	G7	3671	B3	6334	G7	7465	E5																						
3106	D6	3350	G7	3673	B2	6340	G7	7470	E5																						
3107	D6	3351	G7	3675	A1	6341	G7	7500	G4																						
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3110	D6	3354	G6	3678	A1	6362	G5	7530	G3																						
3111	E5	3355	G5	3679	B2	6364	G6	7540	F5																						
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3113	D5	3357	G5	3681	B2	6366	G5	7602	B2																						
3114	D5	3358	G6	3682	B2	6375	G6	7608	B2																						
3115	D5	3359	G6	3683	B2	6376	G6	7610	B2																						
3116	D6	3360	G5	3684	B2	6378	G6	7640	A2																						
3117	D6	3361	G5	3685	B2	6460	F5	7641	A2																						
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3123	E6	3367	G6	3804	G7	6502	G3	9000	G6																						
3124	D6	3368	F7	3805	G7	6503	D4	9001	G8																						
3125	D6	3369	G6	3999	A7	6504	F4	9002	E7																						
3126	E6	3370	F7	4300	G2	6505	F5	9003	G6																						
3128	E6	3372	G4	5001	B4	6506	G3	9004	G6																						
3130	D5	3373	G6	5002	A7	6510	E3	9020	G5																						
3131	D6	3374	G6	5004	C7	6511	E3	9021	G3																						
3132	E5	3376	G6	5005	E1	6512	F3	9022	G4																						
3133	E5	3377	G6	5121	D6	6513	F3	9023	F3																						
3134	D5	3378	G5	5220	E6	6520	G3																								
3135	D5	3380	G6	5225	E8	6530	G3																								
3136	D5	3381	G6	5229	E8	6531	G4																								
3138	E6	3382	G7	5260	G8	6600	E3																								
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3140	E6	3386	G6	5290	A8	6602	A3																								
3141	E6	3387	G6	5291	A8	6605	D3																								
3142	E6	3388	G7	5292	A8	6606	E3																								
3143	E6	3389	G7	5293	B8	6608	B2																								
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3200	F5	3397	G8	5612	C2	6651	A3																								
3202	F6	3400	F2	5660	A1	6652	A2																								
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3206	F5	3451	E3	6007	C4	6661	A3																								
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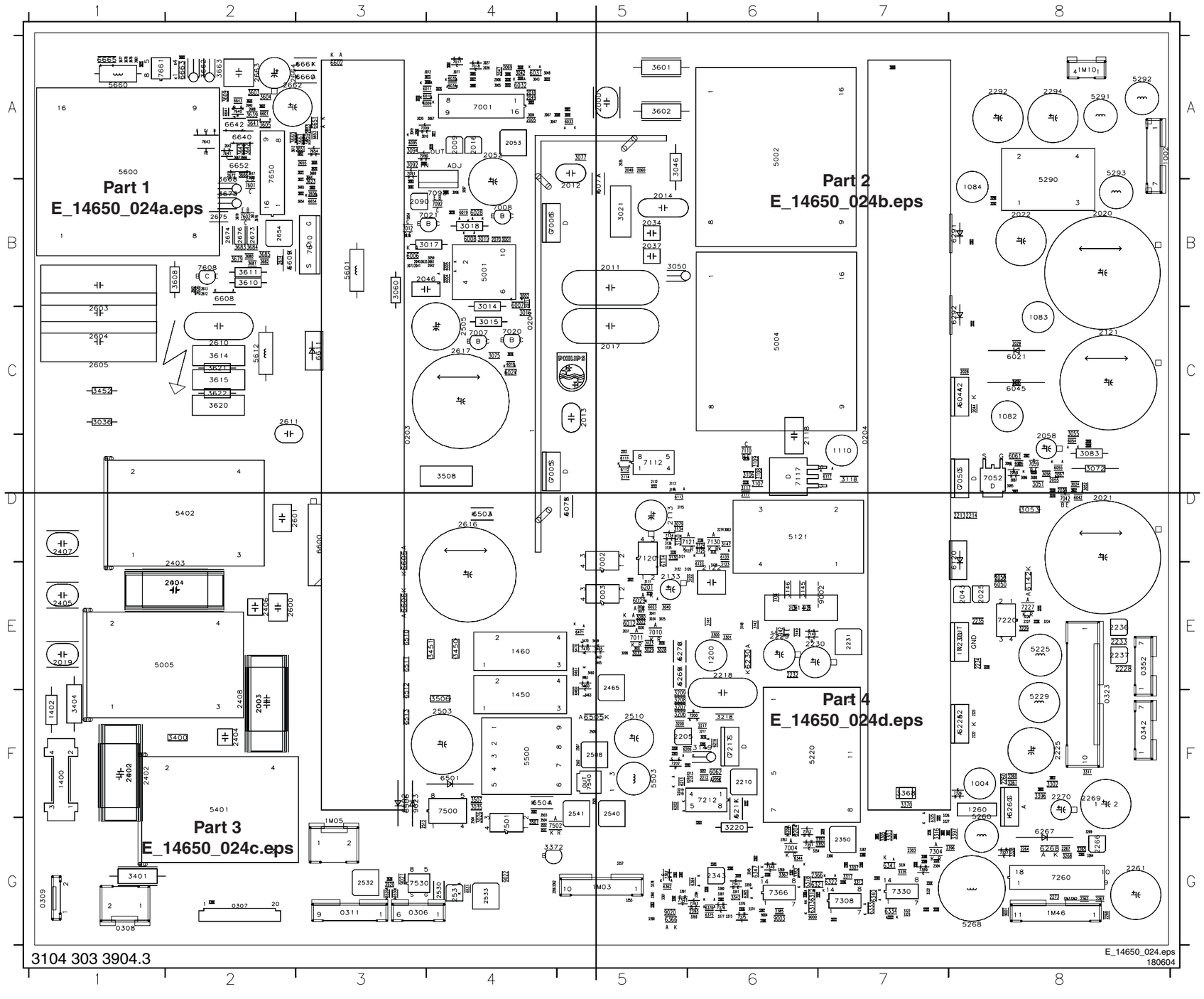
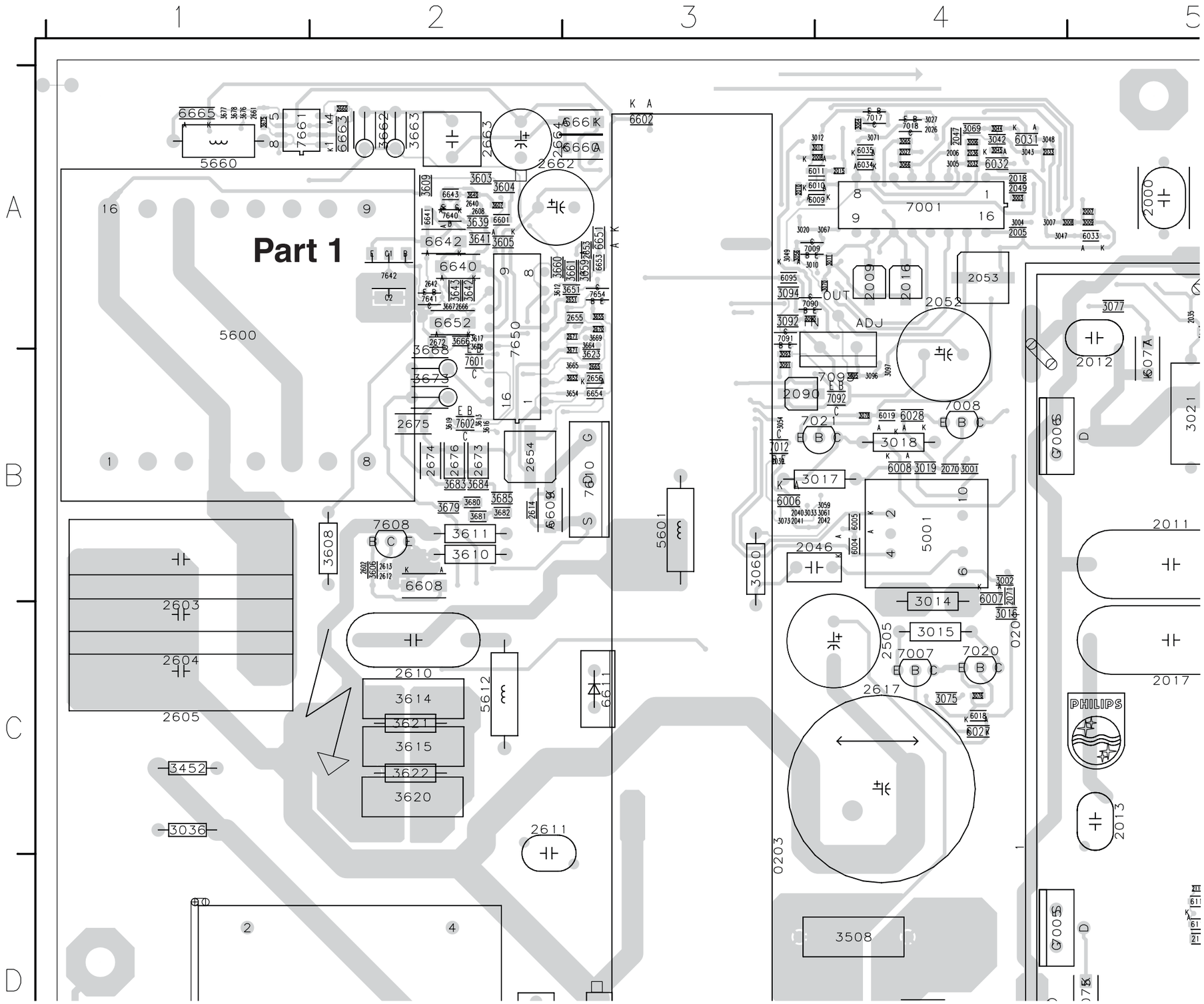


Layout Power Supply Unit (FHP 42 Inch) (Part 1 Top Side)



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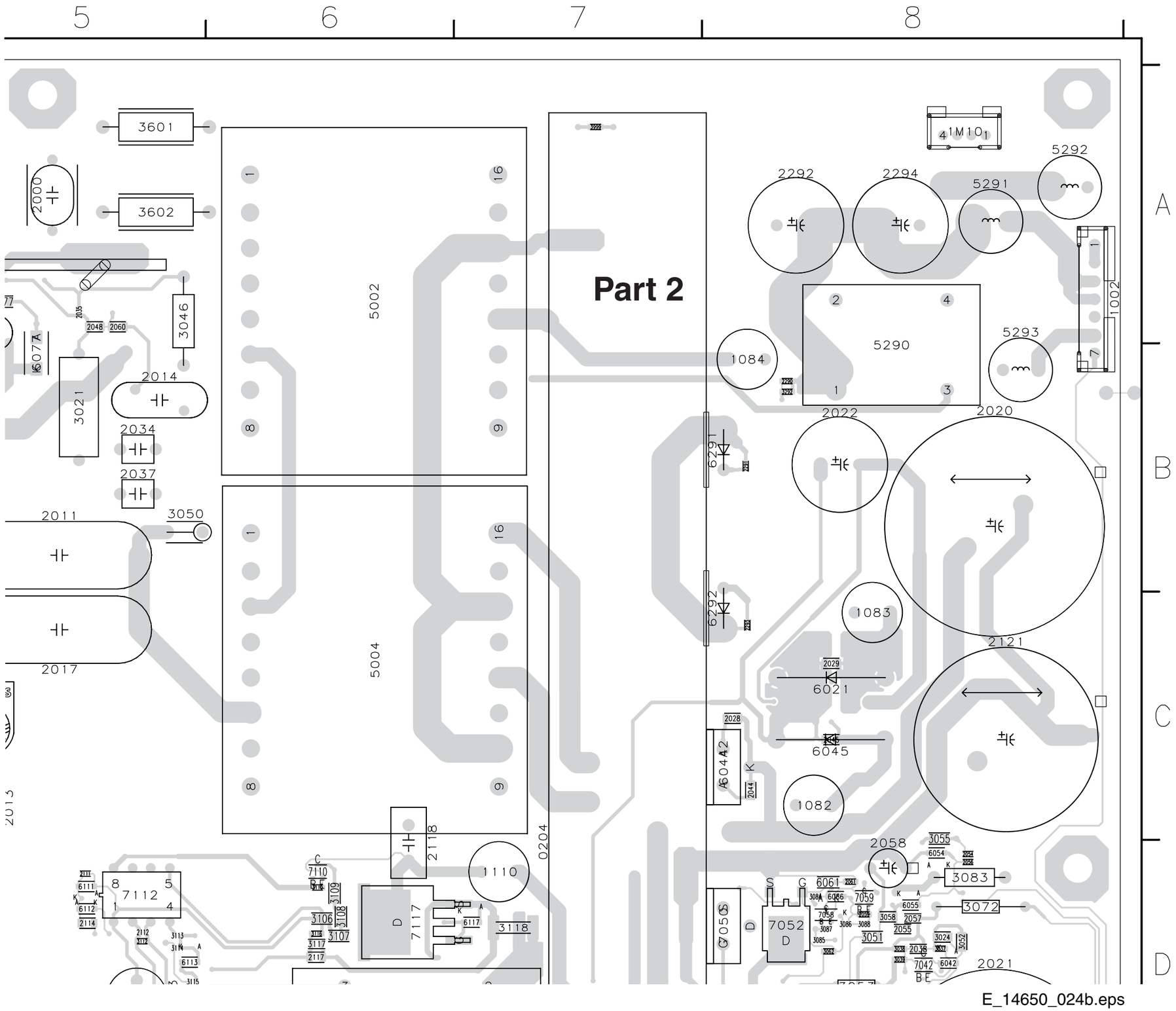
170604

Layout Power Supply Unit (FHP 42 Inch) (Part 2 Top Side)



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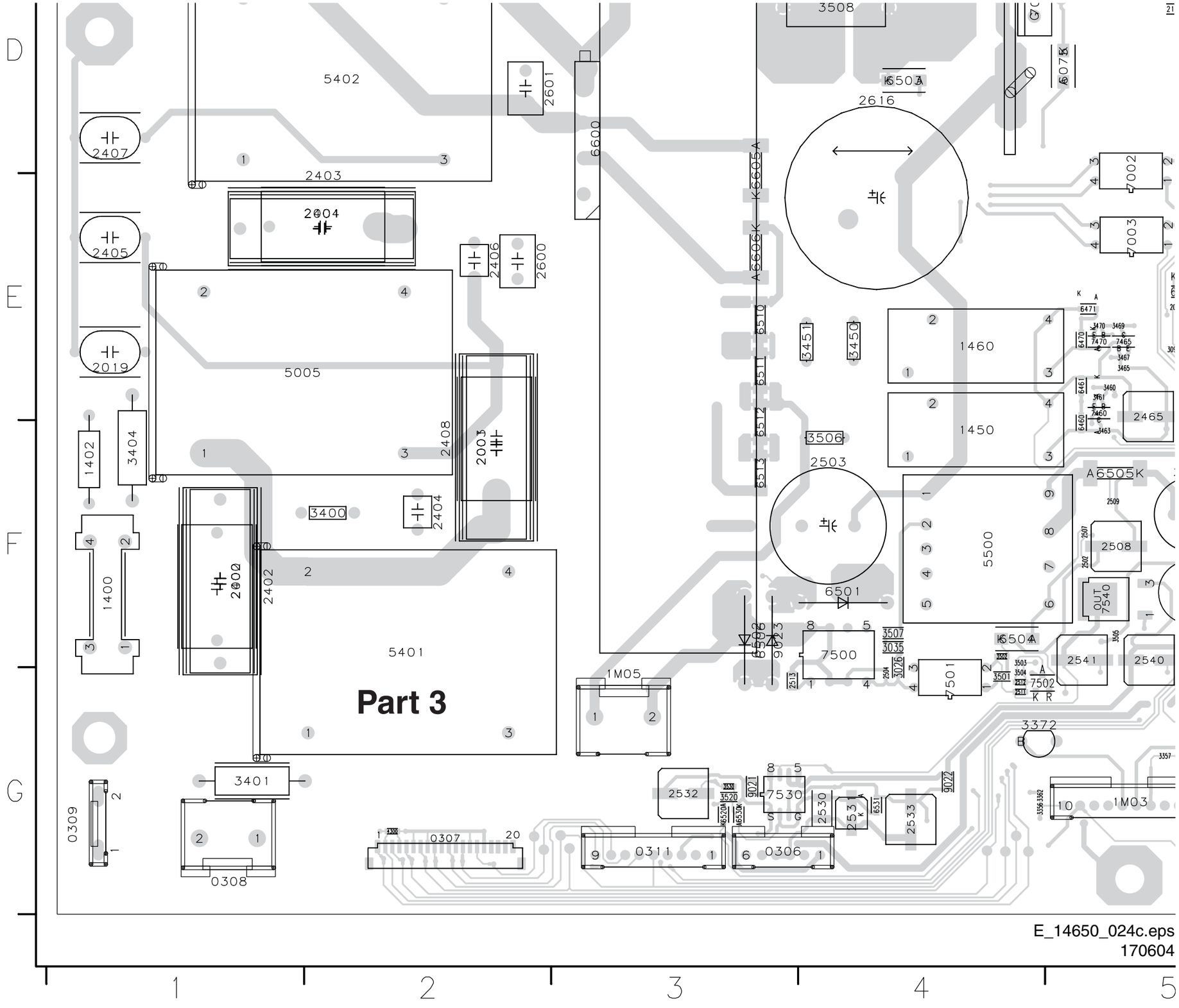
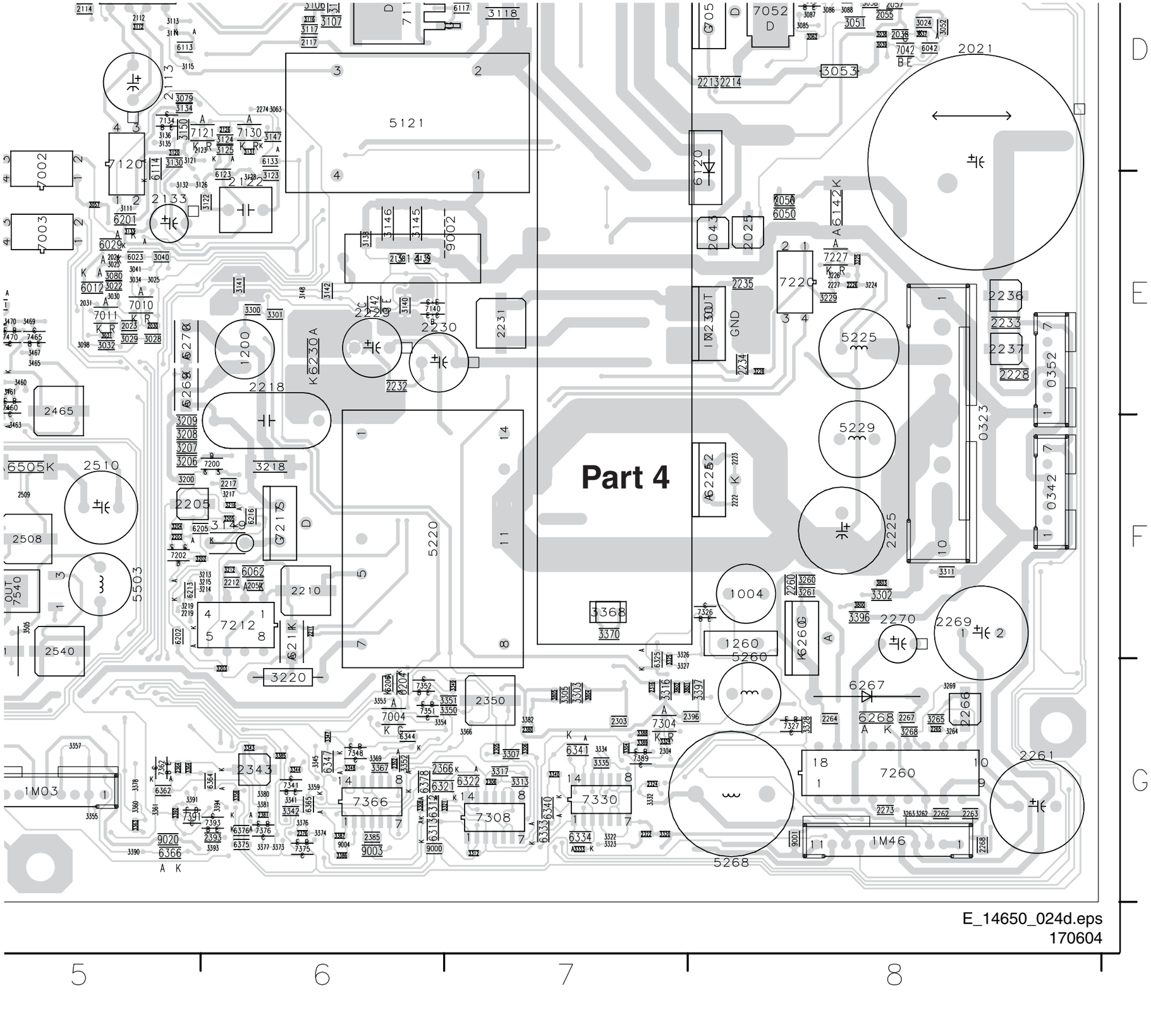
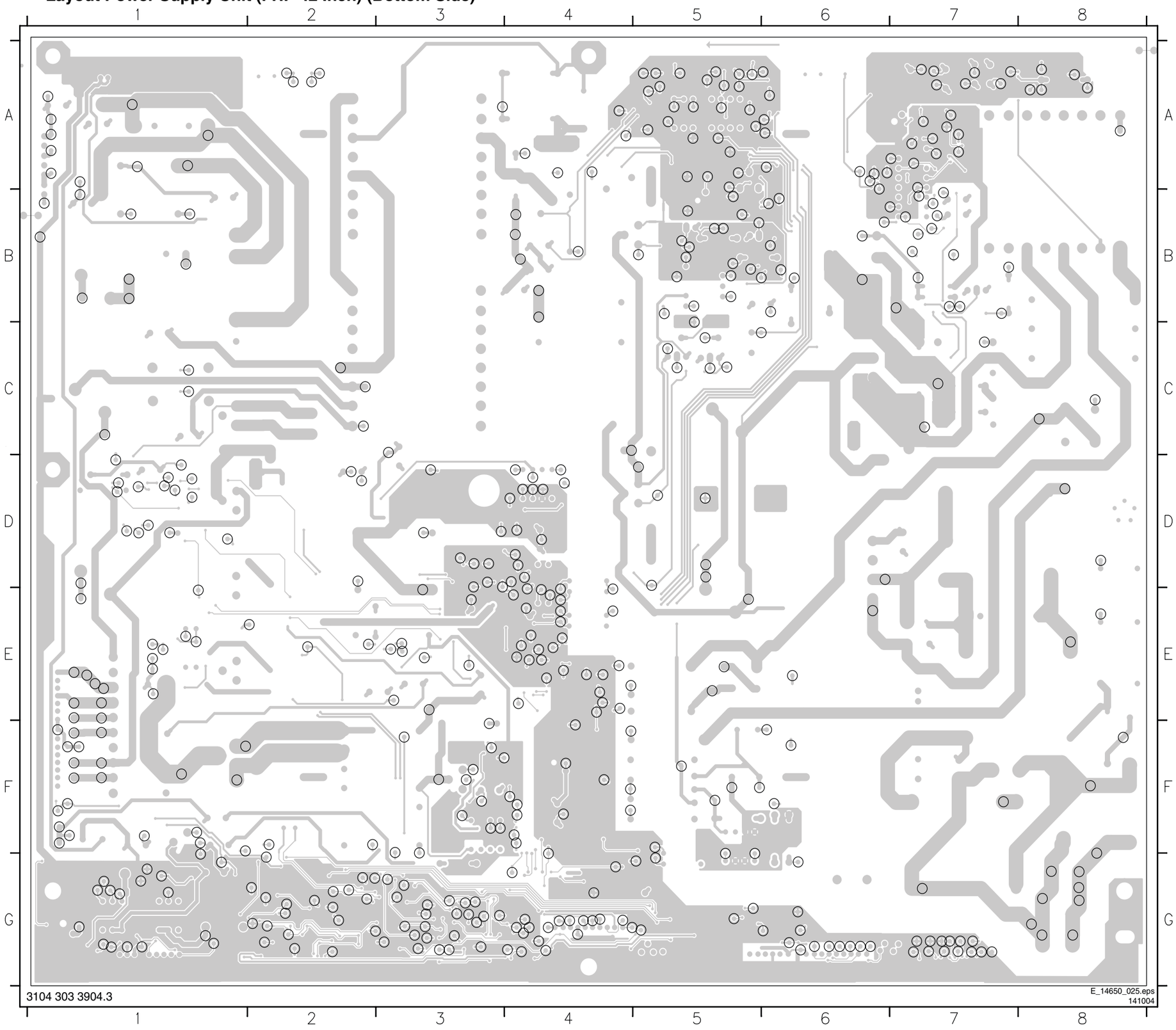
Layout Power Supply Unit (FHP 42 Inch) (Part 3 Top Side)



Layout Power Supply Unit (FHP 42 Inch) (Part 4 Top Side)

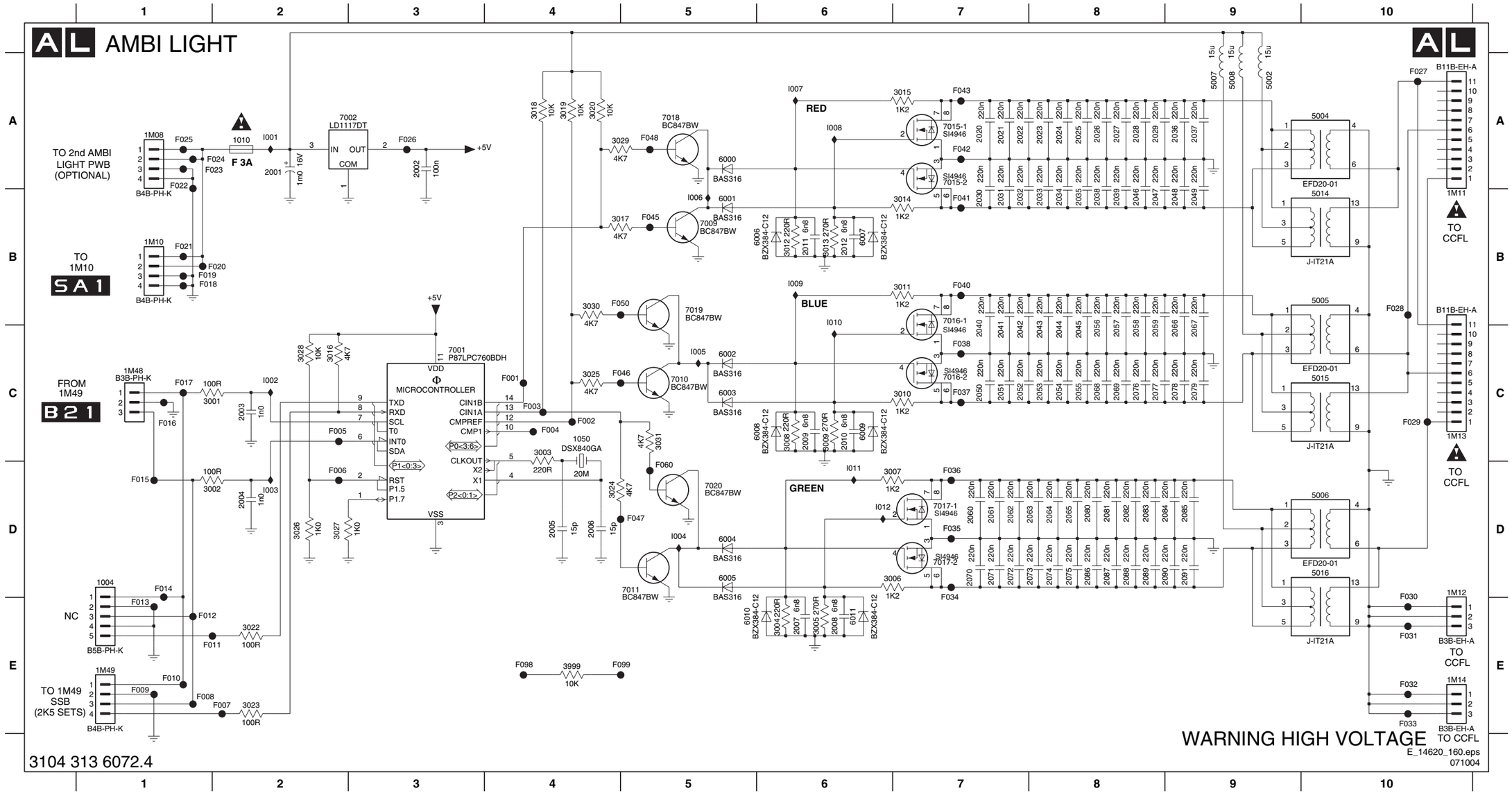


Layout Power Supply Unit (FHP 42 Inch) (Bottom Side)



Ambi Light

1004 D1	2002 A3	2021 A7	2033 B8	2045 C8	2057 C8	2069 C8	2081 D8	3002 D1	3014 B7	3027 D2	5014 B10	6009 C6	7017-1 D7	F008 E1	F020 B2	F032 E10	F046 C5	I006 B5
1010 A2	2003 C2	2022 A7	2034 B8	2046 B8	2058 C8	2070 D7	2082 D8	3003 C4	3015 A7	3028 C2	5015 C10	6010 E5	7017-2 D7	F009 E1	F021 B1	F033 E10	F047 D5	I007 A6
1050 C4	2004 D2	2023 A8	2035 B8	2047 B8	2059 C8	2071 D7	2083 D8	3004 E6	3016 C2	3029 A4	5016 D10	6011 E6	7018 A5	F010 E1	F022 A1	F034 E7	F048 A5	I008 A6
1M08 A1	2005 D4	2024 A8	2036 A9	2048 B9	2060 D7	2072 D7	2084 D9	3005 E6	3017 B4	3030 B4	6000 A5	7001 C3	7019 B5	F011 E1	F023 A2	F035 D7	F050 B4	I009 B6
1M10 B1	2006 D4	2025 A8	2037 A9	2049 B9	2061 D7	2073 D8	2085 D9	3006 D6	3018 A4	3031 C5	6001 B5	7002 A2	7020 D5	F012 E1	F024 A2	F036 D7	F060 D5	I010 B6
1M11 B10	2007 E6	2026 A8	2038 B8	2050 C7	2062 D7	2074 D8	2086 D8	3007 D6	3019 A4	3999 E4	6002 C5	7009 B5	F001 C4	F013 E1	F025 A1	F037 C7	F098 E4	I011 D6
1M12 D10	2008 E6	2027 A8	2039 B8	2051 C7	2063 D8	2075 D8	2087 D8	3008 C6	3020 A4	5002 A9	6003 C5	7010 C5	F002 C4	F014 D1	F026 A3	F038 C7	F099 E5	I012 D6
1M13 C10	2009 C6	2028 A8	2040 C7	2052 C7	2064 D8	2076 C8	2088 D8	3009 C6	3022 E2	5004 A10	6004 D5	7011 D5	F003 C4	F015 D1	F027 A10	F040 B7	I001 A2	
1M14 E10	2010 C6	2029 A8	2041 C7	2053 C8	2065 D8	2077 C8	2089 D8	3010 C7	3023 E2	5005 B10	6005 D5	7015-1 A7	F004 C4	F016 C1	F028 B10	F041 B7	I002 C2	
1M48 C1	2011 B6	2030 B7	2042 C7	2054 C8	2066 C9	2078 C9	2090 D9	3011 B7	3024 D4	5006 D10	6006 B6	7015-2 A7	F005 C2	F017 C1	F029 C10	F042 A7	I003 D2	
1M49 E1	2012 B6	2031 B7	2043 C8	2055 C8	2067 C9	2079 C9	2091 D9	3012 B6	3025 C4	5007 A9	6007 B6	7016-1 B7	F006 D2	F018 B1	F030 E10	F043 A7	I004 D5	
2001 A2	2020 A7	2032 B7	2044 C8	2056 C8	2068 C8	2080 D8	3001 C1	3013 B6	3026 D2	5008 A9	6008 C6	7016-2 C7	F007 E2	F019 B1	F031 E10	F045 B5	I005 C5	



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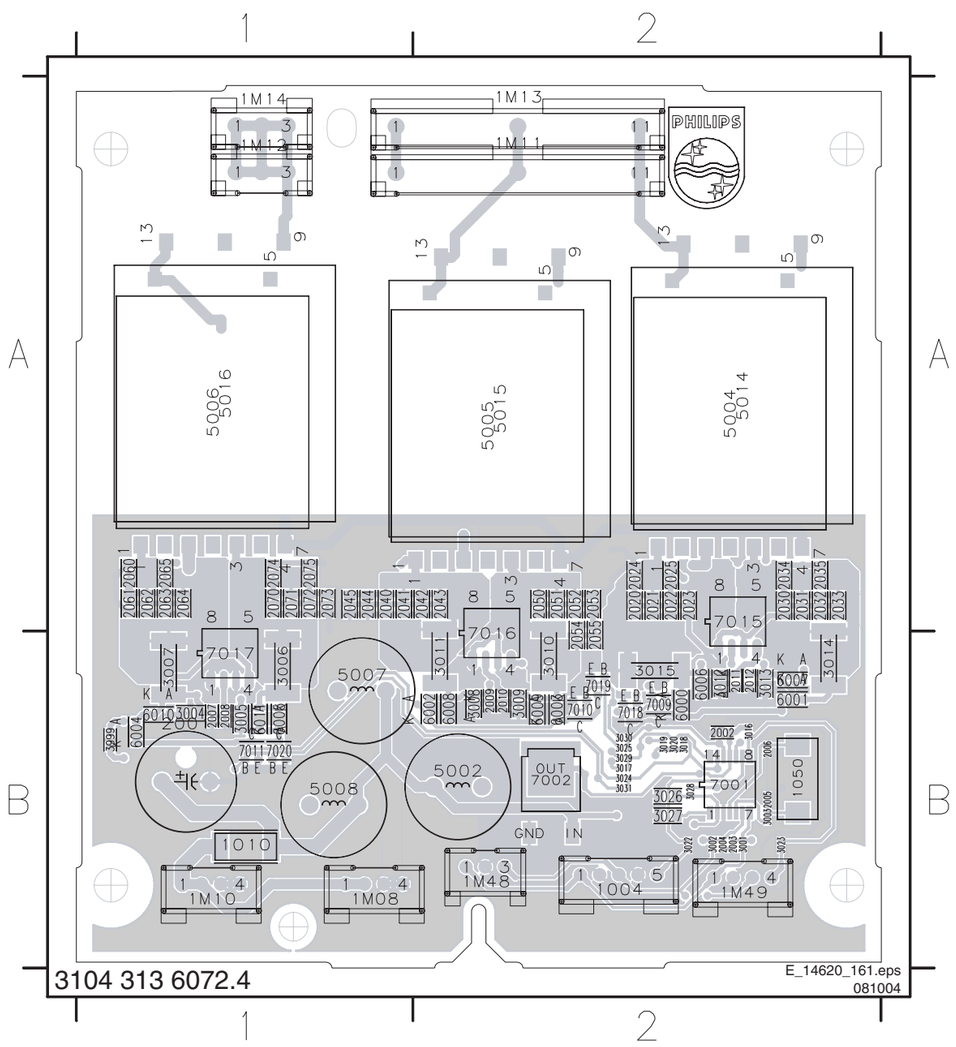
071004

Layout Ambi Light (Top Side)

1004	B2	2011	B2	2051	A2	3005	B1	3027	B2	6006	B2
1010	B1	2012	B2	2052	A2	3006	B1	3028	B2	6007	B2
1050	B2	2020	A2	2053	A2	3007	B1	3029	B2	6008	B2
1M08	B1	2021	A2	2054	B2	3008	B2	3030	B2	6009	B2
1M10	B1	2022	A2	2055	B2	3009	B2	3031	B2	6010	B1
1M11	A2	2023	A2	2060	A1	3010	B2	3999	B1	6011	B1
1M12	A1	2024	A2	2061	A1	3011	B2	5002	B2	7001	B2
1M13	A2	2025	A2	2062	A1	3012	B2	5004	A2	7002	B2
1M14	A1	2030	A2	2063	A1	3013	B2	5005	A1	7009	B2
1M48	B2	2031	A2	2064	A1	3014	B2	5006	A1	7010	B2
1M49	B2	2032	A2	2065	A1	3015	B2	5007	B1	7011	B1
2001	B1	2033	A2	2070	A1	3016	B2	5008	B1	7015	B2
2002	B2	2034	A2	2071	A1	3017	B2	5014	A2	7016	B2
2003	B2	2035	A2	2072	A1	3018	B2	5015	A1	7017	B1
2004	B2	2040	A1	2073	A1	3019	B2	5016	A1	7018	B2
2005	B2	2041	A1	2074	A1	3020	B2	6000	B2	7019	B2
2006	B2	2042	A2	2075	A1	3022	B2	6001	B2	7020	B1
2007	B1	2043	A2	3001	B2	3023	B2	6002	B2		
2008	B1	2044	A1	3002	B2	3024	B2	6003	B2		
2009	B2	2045	A1	3003	B2	3025	B2	6004	B1		
2010	B2	2050	A2	3004	B1	3026	B2	6005	B1		



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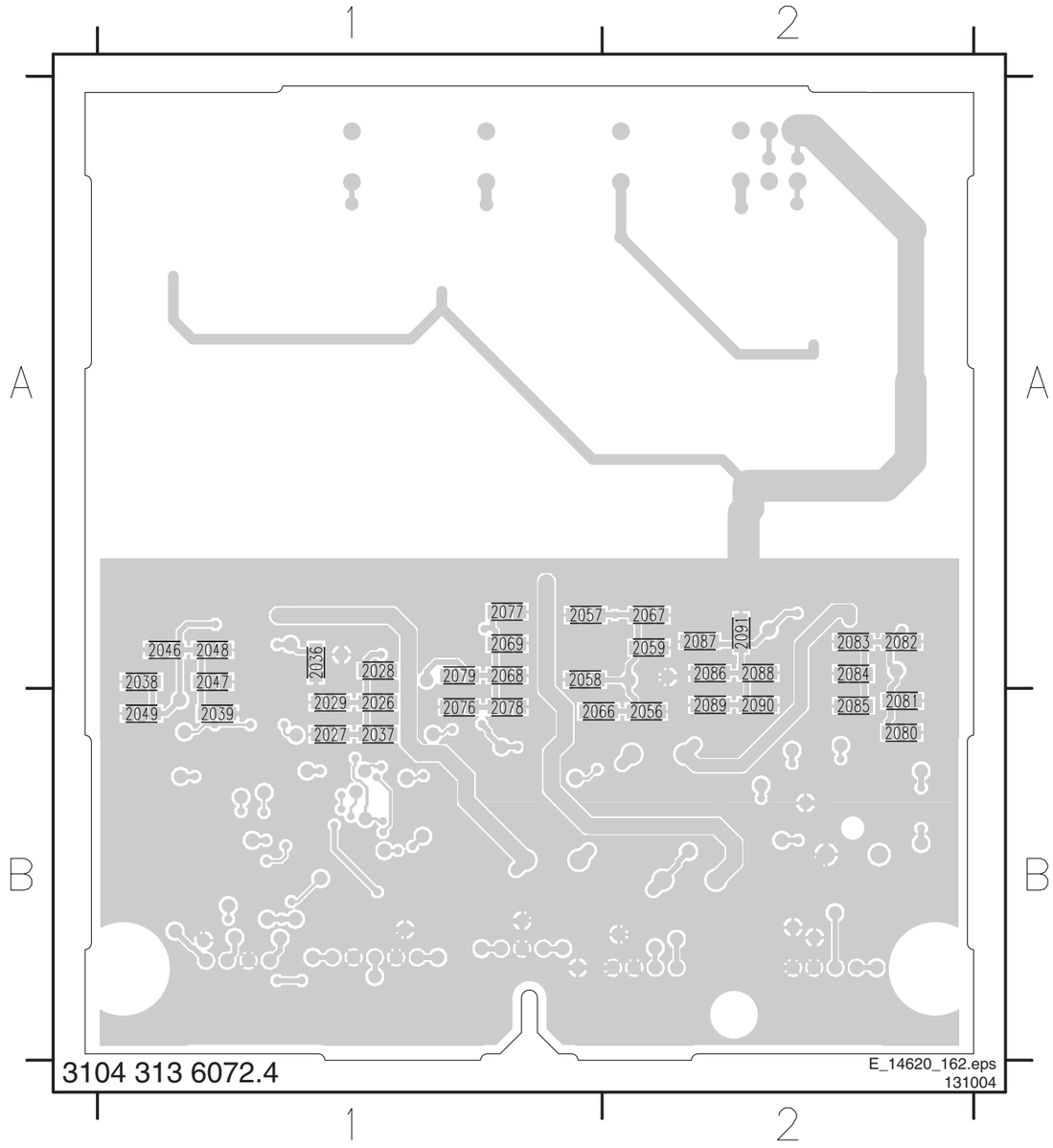
081004

Layout Ambi Light (Bottom Side)

2026	B1	2037	B1	2048	A1	2059	A2	2076	B1	2081	B2	2086	A2	2091	A2
2027	B1	2038	A1	2049	B1	2066	B1	2077	A1	2082	A2	2087	A2		
2028	A1	2039	B1	2056	B2	2067	A2	2078	B1	2083	A2	2088	A2		
2029	B1	2046	A1	2057	A1	2068	A1	2079	A1	2084	A2	2089	B2		
2036	A1	2047	A1	2058	A1	2069	A1	2080	B2	2085	B2	2090	B2		



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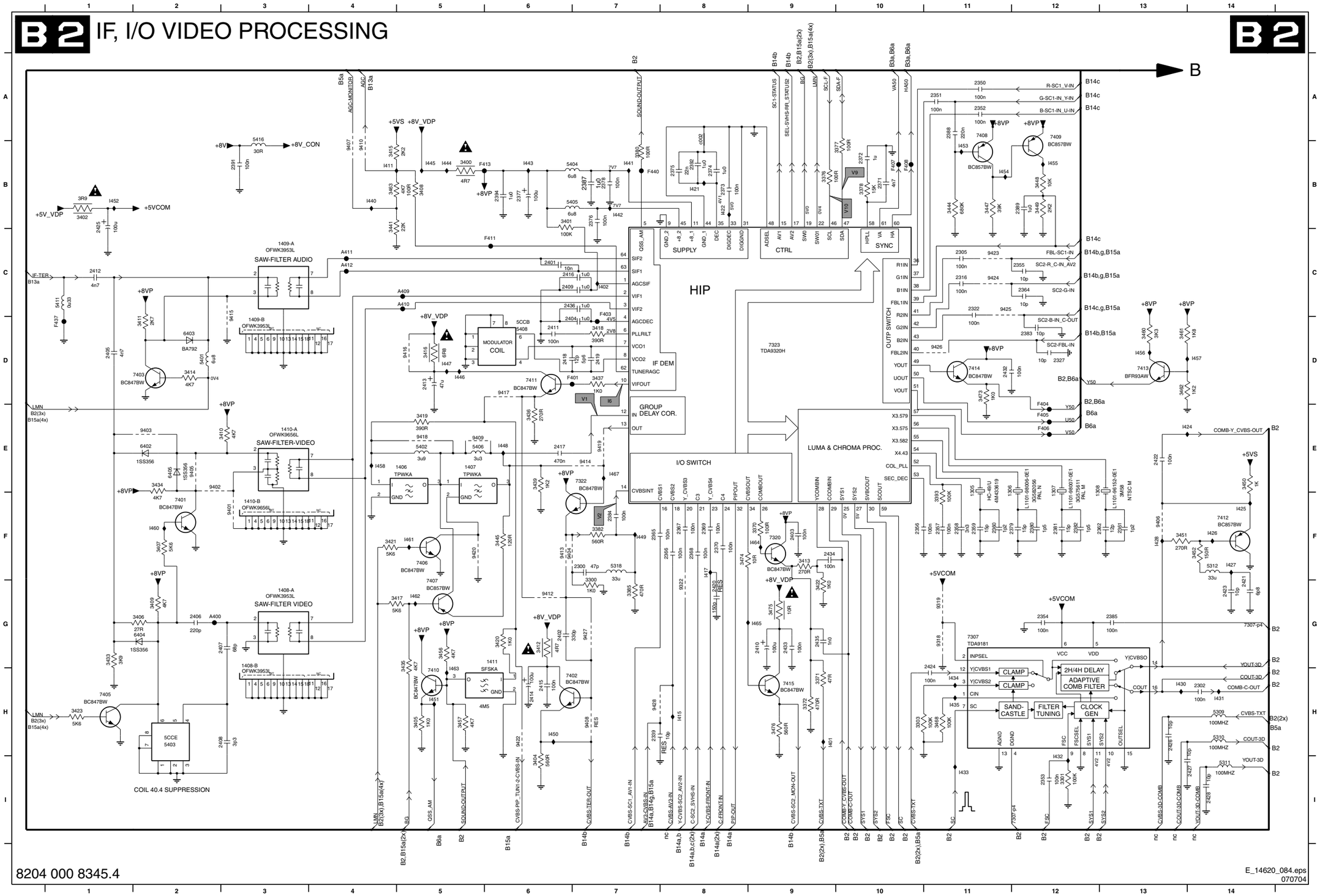
Small Signal Board: IF, I/O Video Processing

B 2 IF, I/O VIDEO PROCESSING



1305 E11	3457 H5	2302 H14	5318 F7
1306 E11	3460 D13	2305 C11	5401 D2
1307 E12	3461 D13	2316 C11	5402 E5
1308 E12	3462 D13	2322 C11	5403 H2
1406 E4	3463 B4	2327 D12	5404 B6
1407 E5	3468 H11	2339 H7	5405 B6
1408-A G3	3473 D11	2350 A11	5406 E5
1408-B G3	3474 F8	2351 A11	5408 D6
1409-A C3	3475 G9	2352 A11	5411 C1
1409-B D3	3476 H9	2353 I12	5416 B3
1410-A E3	5309 H14	2354 G12	6402 E2
1410-B F3	5310 H14	2355 C12	6403 D2
1411 G6	5311 I14	2356 F10	6404 G2
2300 F7	5312 F14	2357 F11	6405 E2
2302 H14	5318 F7	2358 F11	7307 G11
2305 C11	5401 D2	2359 F11	7320 F9
2316 C11	5402 E5	2360 F11	7322 E7
2322 C11	5403 H2	2361 F13	7323 D9
2327 D12	5404 B6	2362 F13	7401 F2
2339 H7	5405 B6	2364 C12	7402 H7
2350 A11	5406 E5	2365 F7	7403 D2
2351 A11	5408 D6	2366 F8	7405 H1
2352 A11	5411 C1	2367 F8	7406 F5
2353 I12	5416 B3	2368 F8	7407 G5
2354 G12	6402 E2	2369 F8	7408 A11
2355 C12	6403 D2	2370 F8	7409 A12
2356 F10	6404 G2	2371 B10	7410 H5
2357 F11	6405 E2	2372 B10	7411 D6
2358 F11	7307 G11	2373 B8	7412 F14
2359 F11	7320 F9	2374 B8	7413 D13
2360 F11	7322 E7	2375 B8	7414 D11
2361 F13	7323 D9	2376 B7	7415 H9
2362 F13	7401 F2	2377 B6	9318 G11
2364 C12	7402 H7	2378 B7	9319 G11
2365 F7	7403 D2	2379 F12	9322 G8
2366 F8	7405 H1	2380 F12	9401 F3
2367 F8	7406 F5	2381 F12	9402 E2
2368 F8	7407 G5	2382 F12	9403 E2
2369 F8	7408 A11	2383 D12	9404 F6
2370 F8	7409 A12	2384 F7	9405 E2
2371 B10	7410 H5	2385 G13	9406 F13
2372 B10	7411 D6	2387 B7	9407 B4
2373 B8	7412 F14	2388 A11	9408 H7
2374 B8	7413 D13	2389 B12	9409 E5
2375 B8	7414 D11	2391 B3	9410 B4
2376 B7	7415 H9	2392 B8	9412 G6
2377 B6	9318 G11	2394 B6	9413 F6
2378 B7	9319 G11	2401 C6	9414 E7
2379 F12	9322 G8	2402 G6	9415 C3
2380 F12	9401 F3	2403 F9	9416 D5
2381 F12	9402 E2	2404 D6	9417 D6
2382 F12	9403 E2	2405 D1	9418 E5
2383 D12	9404 F6	2406 G2	9419 E7
2384 F7	9405 E2	2407 G3	9420 F5
2385 G13	9406 F13	2408 H3	9422 H6
2387 B7	9407 B4	2409 C6	9423 C11
2388 A11	9408 H7	2410 G9	9424 C11
2389 B12	9409 E5	2411 D6	9425 C11
2391 B3	9410 B4	2412 C1	9426 D11
2392 B8	9412 G6	2413 D5	9427 G7
2394 B6	9413 F6	2414 H6	9428 H7
2401 C6	9414 E7	2415 H6	A400 G2
2402 G6	9415 C3	2416 C6	A409 C5
2403 F9	9416 D5	2417 E6	A410 C5
2404 D6	9417 D6	2418 D6	A411 C4
2405 D1	9418 E5	2419 D7	A412 C4
2406 G2	9419 E7	2420 G8	F401 D7
2407 G3	9420 F5	2421 G14	F403 C7
2408 H3	9422 H6	2422 E13	F404 E12
2409 C6	9423 C11	2423 G14	F405 E12
2410 G9	9424 C11	2424 H11	F406 E12
2411 D6	9425 C11	2425 B1	F407 B10
2412 C1	9426 D11	2426 H13	F408 B10
2413 D5	9427 G7	2427 I14	F411 C6
2414 H6	9428 H7	2428 I14	F413 B6
2415 H6	A400 G2	2432 D11	F437 D1
2416 C6	A409 C5	2433 G9	F440 B7
2417 E6	A410 C5	2434 F9	I401 H9
2418 D6	A411 C4	2435 G9	I402 C7
2419 D7	A412 C4	2436 C6	I411 B4
2420 G8	F401 D7	3300 G7	I415 H8
2421 G14	F403 C7	3301 I12	I417 F8
2422 E13	F404 E12	3303 H10	I421 B8
2423 G14	F405 E12	3370 F9	I422 B8
2424 H11	F406 E12	3371 H9	I424 E13
2425 B1	F407 B10	3372 H9	I425 F14
2426 H13	F408 B10	3376 B9	I426 F14
2427 I14	F411 C6	3377 B10	I427 F14
2428 I14	F413 B6	3378 B10	I428 F13
2432 D11	F437 D1	3380 B7	I430 H13
2433 G9	F440 B7	3382 F7	I431 H14
2434 F9	I401 H9	3385 G7	I432 I12
2435 G9	I402 C7	3400 B5	I433 I11
2436 C6	I411 B4	3401 B6	I434 H11
3300 G7	I415 H8	3402 B1	I435 H11
3301 I12	I417 F8	3404 I6	I440 B4
3303 H10	I421 B8	3405 H5	I441 B7
3370 F9	I422 B8	3406 G2	I442 B7
3371 H9	I424 E13	3407 F2	I443 B6
3372 H9	I425 F14	3408 B5	I444 B5
3376 B9	I426 F14	3409 G2	I445 B5
3377 B10	I427 F14	3410 E3	I446 D5
3378 B10	I428 F13	3411 D2	I447 D5
3380 B7	I430 H13	3412 G6	I448 E6
3382 F7	I431 H14	3413 F9	I449 F7
3385 G7	I432 I12	3414 D2	I450 H6
3393 F11	I433 I11	3415 B4	I451 H6
3400 B5	I434 H11	3416 D5	I452 B1
3401 B6	I435 H11	3417 G5	I453 B11
3402 B1	I440 B4	3418 D7	I454 B11
3404 I6	I441 B7	3419 E5	I455 B12
3405 H5	I442 B7	3420 G6	I456 D13
3406 G2	I443 B6	3421 F4	I457 D14
3407 F2	I444 B5	3422 G9	I458 E4
3408 B5	I445 B5	3423 H1	I460 F2
3409 G2	I446 D5	3433 G1	I461 F5
3410 E3	I447 D5	3434 E2	I462 G5
3411 D2	I448 E6	3435 G5	I463 H5
3412 G6	I449 F7	3436 E6	I464 F9
3413 F9	I450 H6	3439 D7	I465 G9
3414 D2	I451 H6	3441 B4	I467 E7
3415 B4	I452 B1	3444 B11	c002 A8
3416 D5	I453 B11	3445 F6	
3417 G5	I454 B11	3447 B12	
3418 D7	I455 B12	3448 B12	
3419 E5	I456 D13	3449 B12	
3420 G6	I457 D14	3450 E14	
3421 F4	I458 E4	3451 F13	
3422 G9	I460 F2	3452 F14	
3423 H1	I461 F5	3456 G5	

Small Signal Board: PICNIC

B3A PICNIC

B3A

FBX SOFTWARE

PROM

PICNIC

7713

SAA4978H

MICRO-PROCESSOR PSP

ANALOG PROCESSING

3 X DAC

3 X ADC

PLL

OSC

BST

FRONT END

BACK END

PEAKING

MUX

MID END

HISTOGRAM

NOISE REDUCTION

TBC/SRC

MUX

FM1

DUAL FIFO (262,214 x 8) x 2

FREQ. MULTI. & ZDB

B3

B

B3D

BUS A

BUS B

BUS C

BUS D

N.C.

* SEE MAPPING I1 ON B3c

** SEE MAPPING G1 ON B3c

8204 000 8343.4

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070704

1702 K6	3928 I3		
1703 K6	3929 I3		
1710 L5	3930 J3		
2707 C2	3931 J4		
2708 I16	3932 J4		
2709 A8	3933 J4		
2710 C17	5703 A8		
2711 C17	5705 J6		
2712 C15	5706 H5	A	
2713 G2	5707 I4		
2714 G3	5708 J4		
2716 C16	5714 H6		
2717 C15	5723 E5		
2718 H3	5724 F5		
2719 J3	5725 C8		
2720 J3	5726 C7		
2721 K3	5727 D7		
2722 K3	5728 D7	B	
2724 F6	6701 A8		
2725 C16	6703 J7		
2726 F13	6710 H6		
2727 E11	7702 H17		
2731 F9	7703 C4		
2732 C7	7705 A6		
2733 I14	7706 A7		
2734 K14	7707 D5		
2735 L9	7708 B6		
2736 M10	7709 C5	C	
2737 G6	7710 D6		
2738 C18	7711 C8		
2740 I5	7712 E7		
2741 I5	7713 I9		
2742 I5	7714 D16		
2743 C6	7715 G5		
2744 C6	7775 H4		
2745 C8	7776 I3		
2746 D8	7777 J4	D	
2747 H5	9700 B7		
2748 F6	9701 F5		
2749 H6	9702 E6		
2754 D8	9703 H7		
2757 I7	9706 L6		
2800 I6	9707 I5		
2804 J6	9708 I4		
2806 H6	9709 J5		
2807 K7	9710 F4	E	
2837 J18	9720 L3		
2838 K17	9726 G4		
2839 K18	9727 E18		
2840 L3	9728 D15		
2841 M3	9729 A4		
2881 J6	9767 I18		
2900 I4	9768 H17		
2901 I4	9769 H16		
2902 J4	9770 H16		
2915 I5	9771 H16	F	
2916 J5	9772 H16		
2917 A7	9809 B5		
2918 A7	9820 B14		
2920 J7	9825 I4		
2926 L17	9826 J3		
2927 M17	9827 J3		
2928 L18	A139 K14		
2929 L6	F107 A8	G	
2931 I5	F108 H2		
2935 L5	F109 I2		
3700 K14	F110 J2		
3701 L6	F112 K3		
3702 E11	F114 F3		
3703 H16	F115 F3		
3704 G17	F118 I7		
3705 H18	F119 K3		
3706 I6	F122 L6	H	
3709 F3	F123 L6		
3710 F3	F124 L6		
3711 E11	F125 L6		
3712 L7	F126 M6		
3713 H3	F127 M6		
3714 I3	F128 F6		
3715 J3	F129 G6		
3716 H3	F140 K14		
3717 J3	F145 C6		
3718 J3	F148 G14	I	
3719 G5	F149 G14		
3720 H5	F151 F10		
3721 H6	F152 L7		
3722 C3	F155 G6		
3723 K6	F156 G6		
3724 H18	F157 H7		
3725 K4	F158 H7		
3726 K3	F159 H7		
3727 K4	F160 I7	J	
3728 K3	F161 I6		
3730 K3	F162 I5		
3732 A6	F163 I5		
3733 C3	F164 J5		
3734 C4	F165 J5		
3736 C5	F166 J5		
3737 C6	F706 C6		
3738 D5	F707 C6		
3739 D5	F708 C6		
3740 A6	F709 D5	K	
3741 D5	F710 K6		
3742 D6	F784 E7		
3743 D6	F785 F7		
3746 D6	F786 E8		
3747 C5	F787 F8		
3748 B5	F788 H7		
3749 D4	I720 B4		
3750 D6	I727 H6		
3751 B6	I802 A8	L	
3752 B7	I803 I6		
3753 C6	I804 H6		
3754 C6	I805 D6		
3755 D5	I810 H5		
3756 D5	I813 A6		
3758 F7	I814 C3		
3759 I6	I815 C5		
3760 D15	I820 D5		
3761 B14			
3826 L3		M	
3827 L3			
3856 J18			
3857 J17			
3858 K18			
3859 K17			
3860 L18			
3861 L18			
3903 C5			
3905 E6			
3909 A9		N	
3922 H3			
3923 H4			
3924 H4			
3925 I4			
3926 I4			
3927 I3			

Small Signal Board: (FEM) Falconic Embedded Memory

B3B

FEM
FALCONIC EMBEDDED MEMORY

B3B

2723 G7
2875 B5
2876 B6
2877 B6
2878 D9
2879 E9
2880 G7
2882 H6
2883 H6
2884 H6
2885 E3
2886 D3
2887 B6
2888 B6
3876 C7
3880 F4
3881 F4
3882 F4
3883 F5
3884 G5
3885 E4
3886 E4
3887 E5
3888 E4
3889 E5
3890 E4
3891 E4
7760 E6
9808 C7
9810 F4
9811 G5

+1V8FA
2875 100n
2876 100n
2877 100n
2887 100n
2888 100n
B3c,B19d
B3c
B3a,c
B3a
YG(6)
YG(7)
UVF(0)
UVF(1)
UVF(2)
UVF(3)
UVF(4)
CLK32
9808
CLK32NE
3876 100R RES
+1V8FA
+1V8FA
+1V8FA
100 YG6|DPIP6
99 VSSM4
98 VDDM4
97 VSSM3
96 VDDM3
95 YG7|DPIP7
94 VD
93 UVF0
92 UVF1
91 VDDA
90 VSSA
89 UVF2
88 UVF3
87 VSSD3
86 VDDD3
85 VSSS2
84 VDDS2
83 CLK32
82 VSSE4
81 UVF4
+3V3FA
2886 100n
B3c,B19d
YG(5) 1 YG5|DPIP5
YG(4) 2 YG4|DPIP4
3 VDDE1
4 VSSE1
YG(3) 5 YG3|DPIP3
YG(2) 6 YG2|DPIP2
YG(1) 7 YG1|DPIP1
YG(0) 8 YG0|DPIP0
UVG(7) 9 UVG7|QPIP7
UVG(6) 10 UVG6|QPIP6
UVG(5) 11 UVG5|QPIP5
UVG(4) 12 UVG4|QPIP4
UVG(3) 13 UVG3|QPIP3
B3c,B19d
3885 1K0
14 NC|LLC
15 VSSE2
3886 1K0
16 NC|SWCK2
UVG(2) 17 UVG2|QPIP2
UVG(1) 18 UVG1|QPIP1
UVG(0) 19 UVG0|QPIP0
3887 1K0
20 NC|RSTW2
3888 1K0
21 NC|OIE2
3889 1K0
22 NC|IE2
23 VDDP
3890 1K0
24 NC|WE2
3891 1K0
25 ACV|RE2
26 NC|RSTR2
27 TRSTN
28 TMS
29 TDI
30 TDO
FEM
7760
SAA4998H/V1
80 UVF5
79 UVF6
78 UVF7
77 VDDE3
76 YF0
75 YF1
74 YF2
73 YF3
72 YF4
71 YF5
70 VSSE3
69 YF6
68 YF7
67 REF
66 VSSD2
65 VDDD2
64 IE
63 REA
62 YA7
61 YA6
60 YA5
59 YA4
58 YA3
57 YA2
56 YA1
55 YA0
54 UVA7
53 UVA6
52 VSSS1
51 VDDS1
UVF(5)
UVF(6)
UVF(7)
B3c
+3V3FA
2878 100n
YF(0)
YF(1)
YF(2)
YF(3)
YF(4)
YF(5)
B3c
YF(6)
YF(7)
RE_F
B3c(2x)
+1V8FA
2879 100n
MF(17)
MF(16)
MF(15)
MF(14)
MF(13)
MF(12)
MF(11)
MF(10)
MF(9)
MF(8)
MF(7)
B3a
+3V3FB
2885 100n
B3a,c,d TRST
B3a,c,d TMS
B3d TDOA
B3c TDOB
9810
3880 47K
3881 47K
3882 47K
3883 47K
+3V3FA
+3V3FA
+3V3FA
+3V3FA
3884 47K
9811
31 TCK
32 RST
33 SNRST
34 SNDA
35 VDDE2
36 PRSON
37 VSSM1
38 VSSM2
39 VDDM2
40 SNCL
41 UVA0
42 UVA1
43 UVA2
44 UVA3
45 UVA4
46 UVA5
47 VDDD1
48 VSSD1
49 TWOFMON
50
+1V8FA
2723 100n
2880 100n
TCK
RST-FEM
RSTB_O
SN-DA
SN-CL
MF(1)
MF(2)
MF(3)
MF(4)
MF(5)
MF(6)
B3a,c,d
B3a
B3a(2x),c
B3a,c(2x),d
B3a,c(2x),d
B3a
+3V3FA
+1V8FA
2884 100n
2883 100n
2882 100n

8204 000 8343.4

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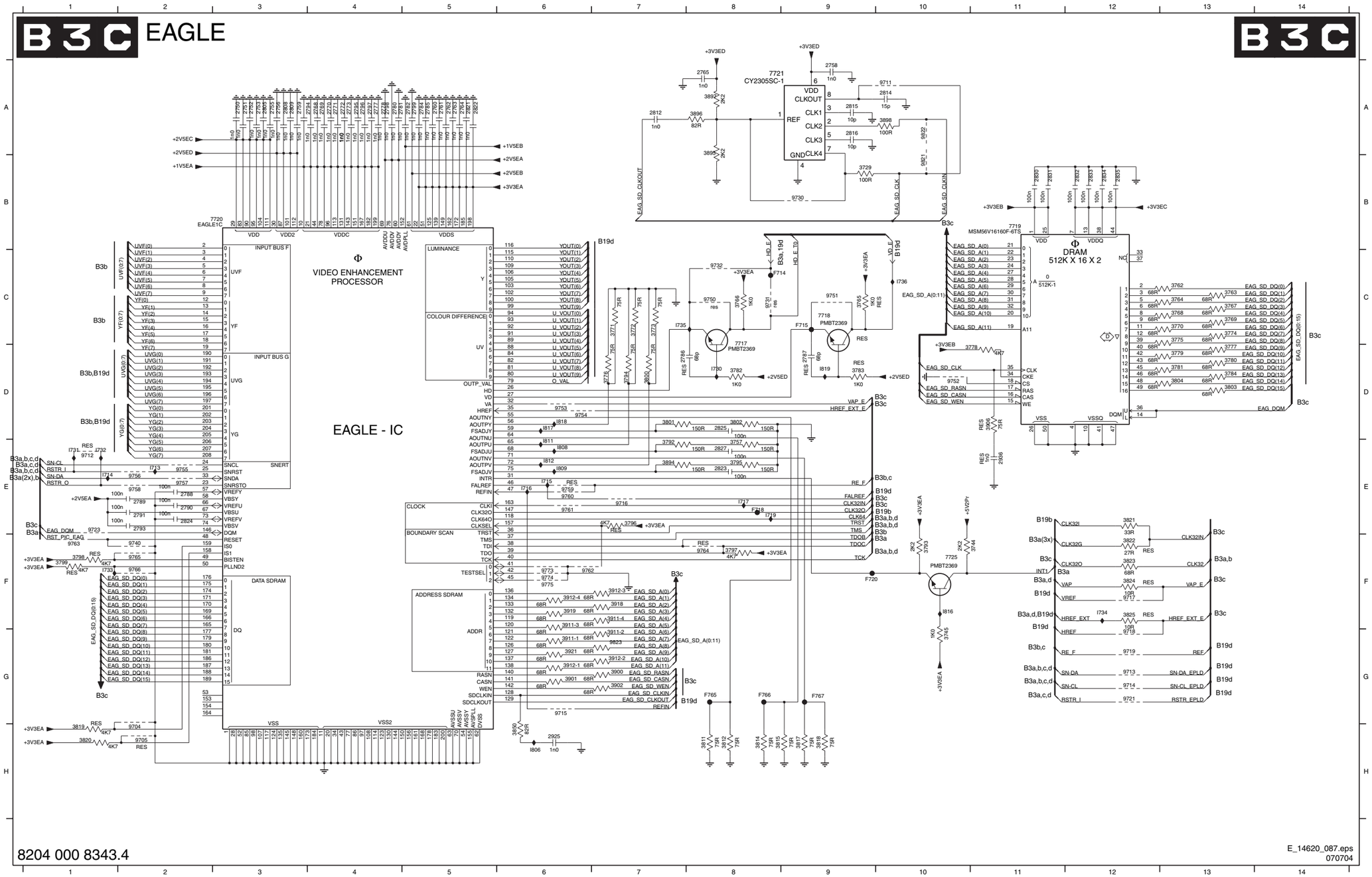
Small Signal Board: Eagle



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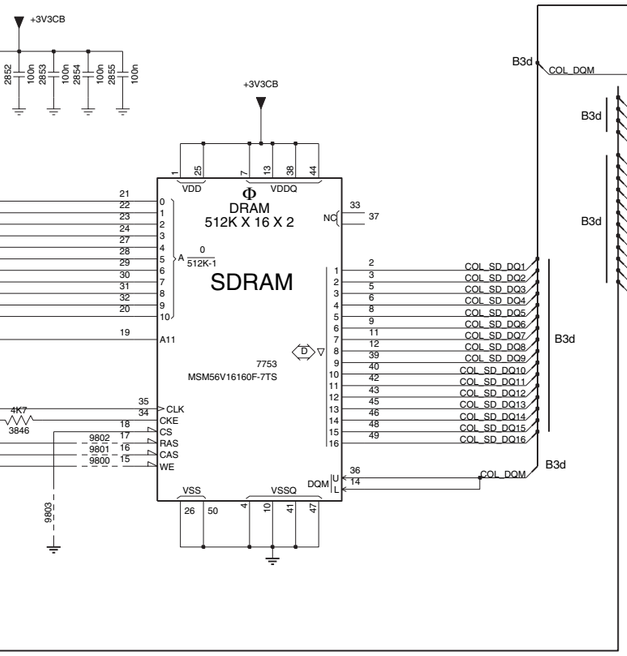
2751 A3	3803 D13	I733 F1	
2752 A3	3804 D13	I734 F12	
2753 A3	3811 H8	I735 C7	
2755 A3	3812 H8	I736 C10	
2756 A3	3814 H8	I806 H6	
2758 A9	3815 H8	I808 E6	
2759 A3	3817 H9	I809 E6	
2760 A5	3818 H9	I811 E6	
2761 A5	3819 H1	I812 E6	
2762 A5	3820 H1	I816 F10	
2763 A5	3821 E12	I817 D6	
2764 A5	3822 F12	I818 D6	
2765 A8	3823 F12	I819 D9	
2768 A4	3824 F12		
2769 A4	3825 F12		
2770 A4	3850 H6		
2771 A4	3894 E7		
2772 A4	3895 A8		
2773 A4	3896 A8		
2777 A4	3897 A8		
2778 A4	3898 A10		
2780 A4	3900 G7		
2781 A4	3901 G6		
2782 A5	3902 G7		
2784 A5	3906 D11		
2785 A5	3911-1 G6		
2786 D7	3911-2 G7		
2787 D9	3911-3 F6		
2788 E2	3911-4 F7		
2789 E2	3912-1 G6		
2790 E2	3912-2 G7		
2791 E2	3912-3 F7		
2793 E2	3912-4 F6		
2794 A4	3918 F7		
2795 A4	3919 F6		
2796 A4	3921 G6		
2797 A4	7717 D8		
2798 A4	7718 C9		
2799 A5	7719 B11		
2805 A3	7720 B3		
2808 A3	7721 A9		
2809 A3	7725 F10		
2812 A7	9704 H2		
2814 A10	9705 H2		
2815 A9	9711 A10		
2816 A9	9712 E1		
2821 A5	9713 G12		
2822 A5	9714 G12		
2823 E8	9715 G6		
2824 E2	9716 E7		
2825 D8	9717 F12		
2827 E8	9718 G12		
2830 B11	9719 G12		
2831 B11	9721 G12		
2832 B12	9723 E1		
2833 B12	9730 B9		
2834 B12	9731 C8		
2835 B12	9732 C8		
2925 H6	9740 F2		
2936 E11	9750 C8		
3729 B9	9751 C9		
3744 F11	9752 D10		
3745 G10	9753 D6		
3757 E8	9754 D6		
3762 C13	9755 E2		
3763 C13	9756 E2		
3764 C13	9757 E2		
3765 C9	9758 E2		
3766 C8	9759 E6		
3767 C13	9760 E6		
3768 C13	9761 E6		
3769 C13	9762 F6		
3770 C13	9763 F1		
3771 C7	9764 F8		
3772 C7	9765 F2		
3773 C7	9766 F2		
3774 C13	9773 F6		
3775 C13	9774 F6		
3776 D7	9775 F6		
3777 D13	9821 B10		
3778 D11	9822 A10		
3779 D13	9823 G7		
3780 D13	F714 C8		
3781 D13	F715 C9		
3782 D8	F718 E8		
3783 D9	F720 F9		
3784 D13	F765 G8		
3792 E7	F766 G8		
3793 F10	F767 G9		
3794 D7	I713 E2		
3795 E8	I714 E1		
3796 E7	I715 E6		
3797 F8	I716 E6		
3798 F1	I717 E8		
3799 F1	I719 E8		
3800 D7	I730 D8		
3801 D7	I731 E1		

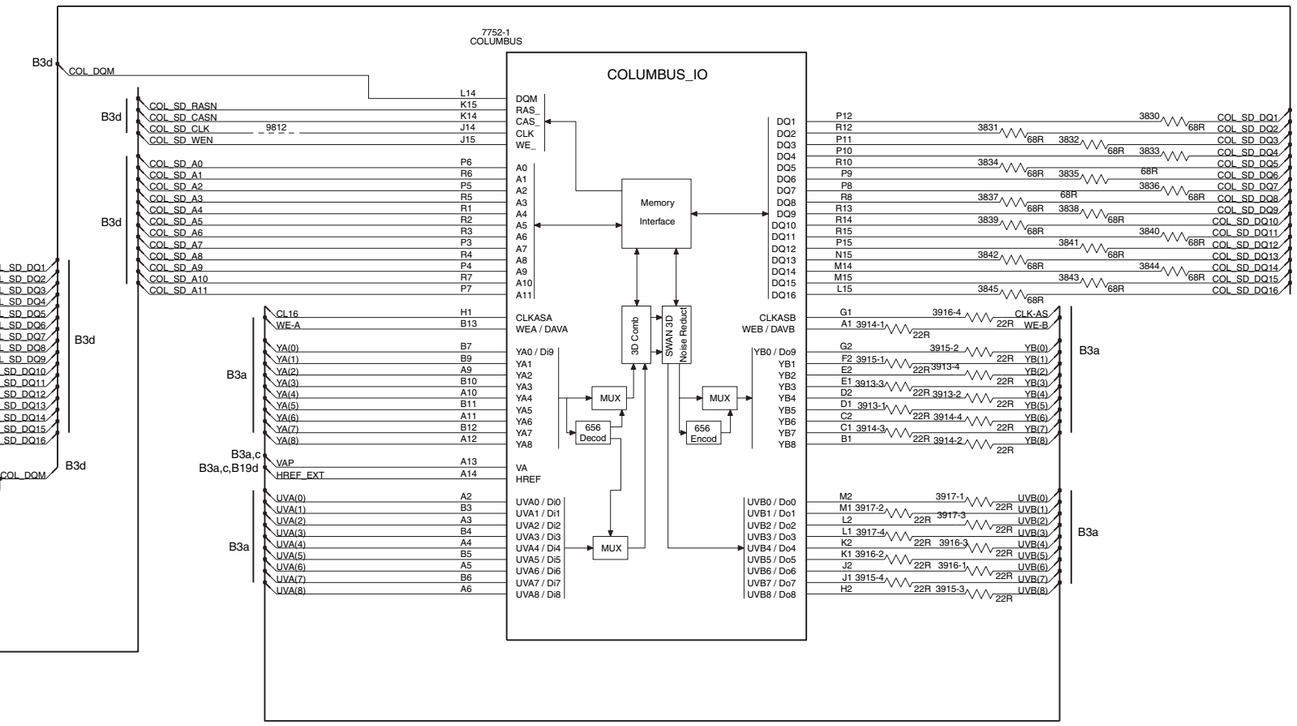
Small Signal Board: Columbus

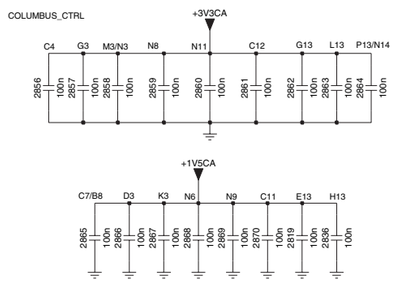
B3D COLUMBUS

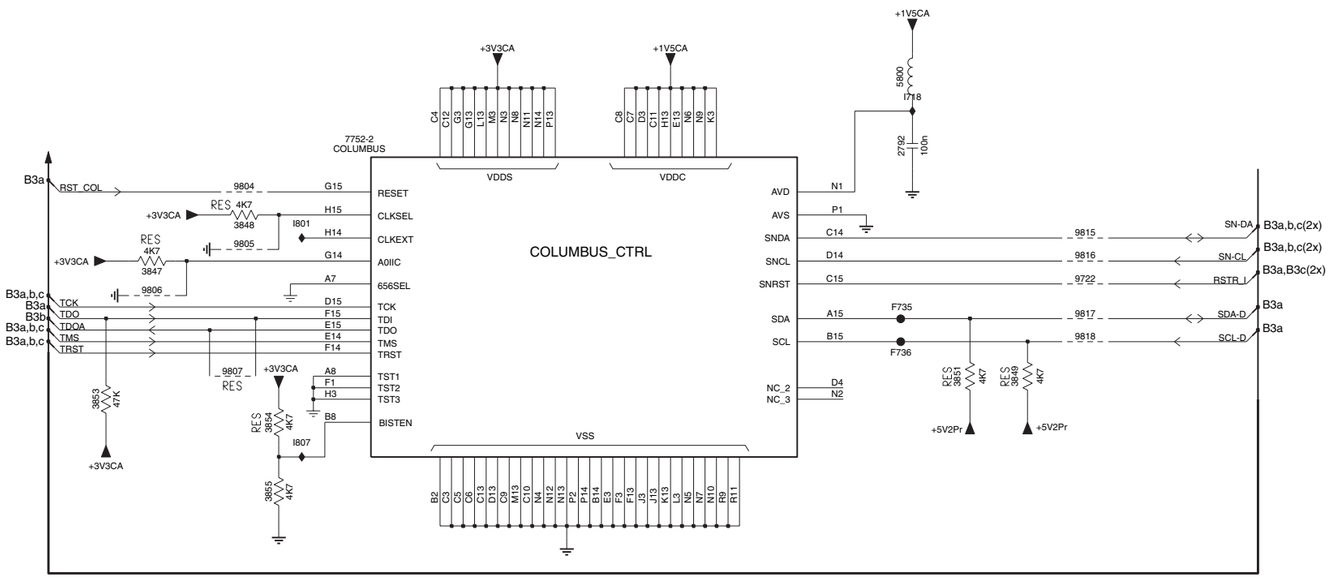
B3D

(ONLY FOR 3D COMB)









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2792 G10
2819 H3
2836 H3
2850 A1
2851 A1
2852 A1
2853 A2
2854 A2
2855 A2
2856 G2
2857 G2
2858 G2
2859 G2
2860 G3
2861 G3
2862 G3
2863 G3
2864 G4
2865 H2
2866 H2
2867 H2
2868 H2
2869 H3
2870 H3
3830 B11
3831 B10
3832 B11
3833 B11
3834 B10
3835 B11
3836 B11
3837 B10
3838 B11
3839 B10
3840 B11
3841 C11
3842 C10
3843 C11
3844 C11
3845 C10
3846 D1
3847 G5
3848 G6
3849 H10
3851 H10
3853 H5
3854 H6
3855 I6
3913-1 D10
3913-2 C10
3913-3 C10
3913-4 C10
3914-1 C10
3914-2 D10
3914-3 D10
3914-4 D10
3915-1 C10
3915-2 C10
3915-3 E10
3915-4 E10
3916-1 E10
3916-2 D10
3916-3 D10
3916-4 C10
3917-1 D10
3917-2 D10
3917-3 D10
3917-4 D10
5800 F10
7752-1 A7
7752-2 G6
7753 C3
9722 H11
9800 D2
9801 D2
9802 D2
9803 D2
9804 G6
9805 G6
9806 H5
9807 H5
9812 B6
9815 G11
9816 G11
9817 H11
9818 H11
F735 H10
F736 H10
I718 F10
I801 G6
I807 I6

Small Signal Board: FBX Supply

B3E FBX SUPPLY

B3e 3V3_FAULT_FBX 3869 100R I756 BAS316 6711
B3e 3V3_FAULT_FBX 3870 100R I758 BAS316 6712
+3V3_DCDCFBXA 2739 100u 2939 100u 16V I744 5767 F790 +3V3PA 2890 100n
B3e 3V3_FAULT_FBX 3875 100R I721 BAS316 6722
5779 F734 +3V3GA 2914 100n
B3e 3V3_FAULT_FBX 3829 100R I759 BAS316 6702
5768 F791 +3V3PB 2891 100n
B3e 3V3_FAULT_FBX 3871 100R I747 BAS316 6713
5769 F792 +3V3PC 2892 100n
B3e 3V3_FAULT_FBX 3872 100R I749 BAS316 6714
5770 F793 +3V3FA 2893 100n
B3e 3V3_FAULT_FBX 3873 100R I750 BAS316 6715
5771 F794 +3V3FB 2894 100n RES
B3e 3V3_FAULT_FBX 3874 100R I751 BAS316 6716 RES
5773 RES RES F748 +3V3Pr
B3e 3V3_FAULT_FBX 3707 100R 6705 BAS316 2843 100n 7773 LF18ABT
5772 I753 I752 10u 2728 2729 100n 1 IN GND 2 3 OUT F795 5763 F796 +1V8FA 2919 100u 2730 100u 2817 100n

+3V3_DCDCFBXA 5775 7774 KF25BDT 1 IN GND 2 3 OUT I743 +2V5_FBXA
2895 10u 2802 100n GND GND GND 2889 100u GND 2924 100n GND

+8V_CON 2938 10u 16V 2932 100n 5702 2933 100n +8VPA

+3V3_DCDCFBXA 5709 res 7701 LF15AB 1 IN GND 2 3 OUT F799 +1V5_FBXB
2715 res 10u res 2897 100n res 2896 100u 5761
6719 S1D 6704 res S1D 5760 I748 7772 LF15AB 1 IN GND 2 3 OUT F713 +1V5_FBXA
2898 10u 2899 100n 2871 100u

+3V3_DCDCFBXA 5719 5720 +3V3_DCDCFBXA
+5VF 5721 5722 +5V_FBXA
+2V5_FBXA 5752 F798 +2V5ED 2849 100n

+5V_FBXA 5754 7770 LD1117 RES 3 IN OUT GND 1 2 I745 +3V3_FBXB
2828 10u 2820 100n 5777 +3V3_DCDCFBXA 2829 100u 2937 100u 16V
+5V_FBXA F749 5755 F750 +5V2Pr 2847 10u 2848 100n

B3a(3x)B3e(14x) 3V3_FAULT_FBX
B12 3V3_FAULT 5778 6u8 2922 10n 2923 10n GND
+2V5_FBXA 5764 F712 +2V5EC 2921 100n
+2V5_FBXA 5713 F711 +2V5EA 2872 100n
+2V5_FBXA 5762 F797 +2V5EB 2873 100n

5757 F745 +1V5EA
+1V5_FBXA 2844 100n
5758 F746 +1V5EB
+1V5_FBXB 2826 100n
5759 F747 +1V5CA
+1V5_FBXB 2874 100n

B3e 3V3_FAULT_FBX 3868 100R I742 BAS316 6717
+3V3_FBXB 5750 F740 +3V3EA 2811 100n
B3e 3V3_FAULT_FBX 3867 100R I746 BAS316 6718
+3V3_FBXB 5751 F741 +3V3EB 2810 100n
B3e 3V3_FAULT_FBX 3877 100R I712 BAS316 6709
+3V3_FBXB 5780 +3V3ED 2818 100n
B3e 3V3_FAULT_FBX 3805 100R I760 6723 BAS316
+3V3_FBXB 5801 F789 +3V3EC 2813 100n
B3e 3V3_FAULT_FBX 3865 100R I754 BAS316 6720
+3V3_FBXB 5756 F744 +3V3CA 2845 100n
B3e 3V3_FAULT_FBX 3864 100R I755 BAS316 6721
+3V3_FBXB 5753 F743 +3V3CB 2846 100n

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2715 C3 5778 E4
2728 F2 5779 B1
2729 F2 5780 C9
2730 F3 5801 D9
2739 B1 6702 C2
2802 B3 6704 D3
2810 B9 6705 F1
2811 A9 6709 C9
2813 D9 6711 A2
2817 F3 6712 B1
2818 C9 6713 D2
2820 B6 6714 D2
2826 E7 6715 E2
2828 B6 6716 E2
2829 B7 6717 A9
2843 F2 6718 B9
2844 E7 6719 C3
2845 E9 6720 E9
2846 F9 6721 F9
2847 C7 6722 B2
2848 C7 6723 D9
2849 D6 7701 B4
2871 D4 7770 B7
2872 E6 7772 C4
2873 F6 7773 F2
2874 F7 7774 A4
2889 B4 F711 E6
2890 B2 F712 D6
2891 C2 F713 C4
2892 D2 F734 B1
2893 D2 F740 A9
2894 E2 F741 B9
2895 B3 F743 F9
2896 C4 F744 E9
2897 C4 F745 D7
2898 D3 F746 E7
2899 D4 F747 F7
2914 C2 F748 E2
2919 F2 F749 C6
2921 E6 F750 C7
2922 E4 F789 D9
2923 E5 F790 B2
2924 B4 F791 C1
2932 A5 F792 D2
2933 A5 F793 D2
2937 B7 F794 E2
2938 A4 F795 F2
2939 B1 F796 F3
3707 F1 F797 F6
3805 D9 F798 D6
3829 C1 F799 B4
3864 F9 I712 C9
3865 E9 I721 B1
3867 B9 I742 A9
3868 A9 I743 A4
3869 A1 I744 B1
3870 A1 I745 B7
3871 C1 I746 B9
3872 D1 I747 C1
3873 E1 I748 C3
3874 E1 I749 D1
3875 B1 I750 E1
3877 C9 I751 E1
5702 A5 I752 F2
5709 B3 I753 F1
5713 E5 I754 E9
5719 B5 I755 F9
5720 C5 I756 A1
5721 C5 I758 A1
5722 C5 I759 C1
5750 A9 I760 D9
5751 B9
5752 D5
5753 F9
5754 B6
5755 C7
5756 E9
5757 D7
5758 E7
5759 F7
5760 C3
5761 C4
5762 F5
5763 F3
5764 D5
5767 B2
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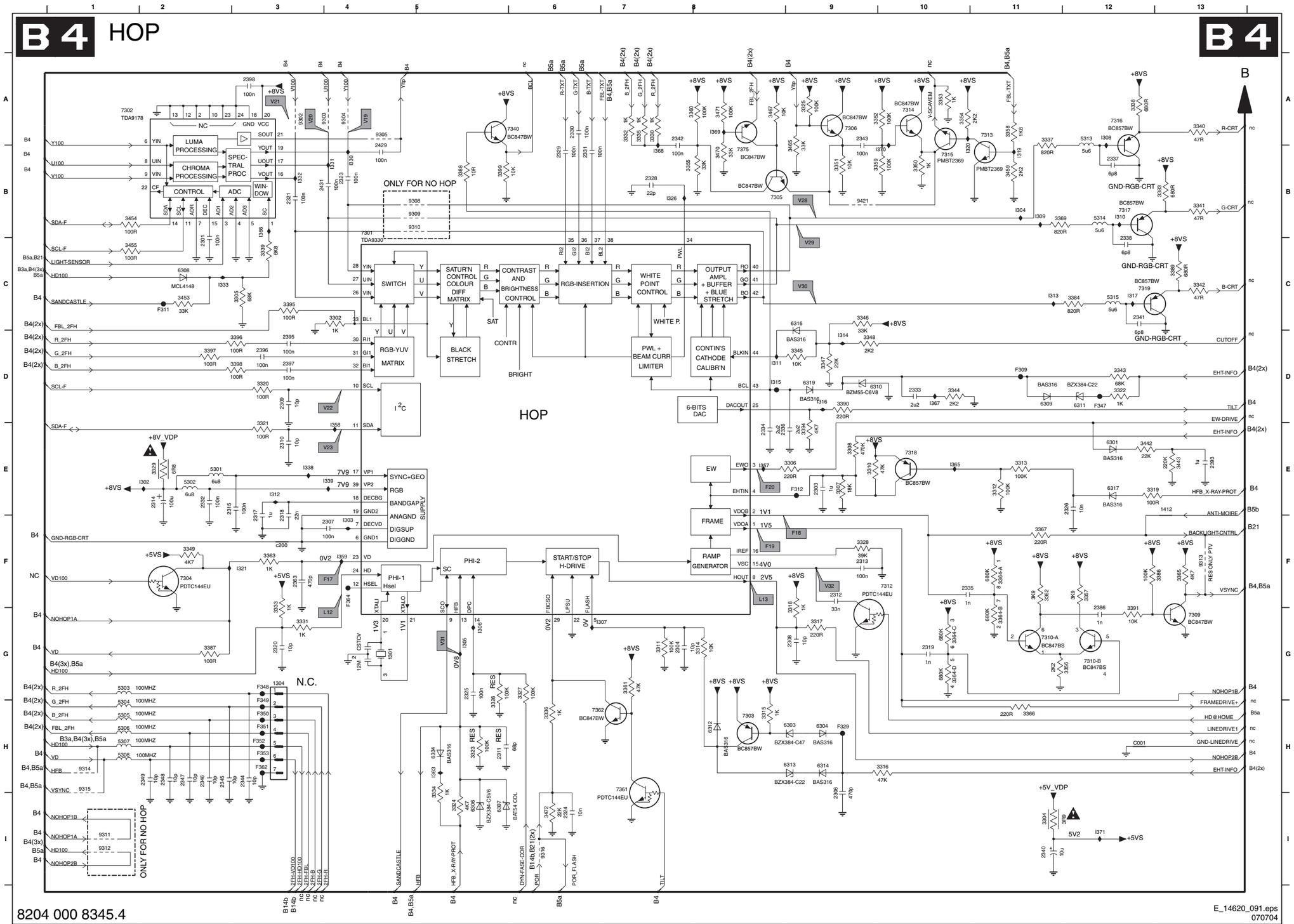
5770 D1
5771 E1
5772 F1
5773 E1
5775 A3
5777 B7

Small Signal Board: HOP



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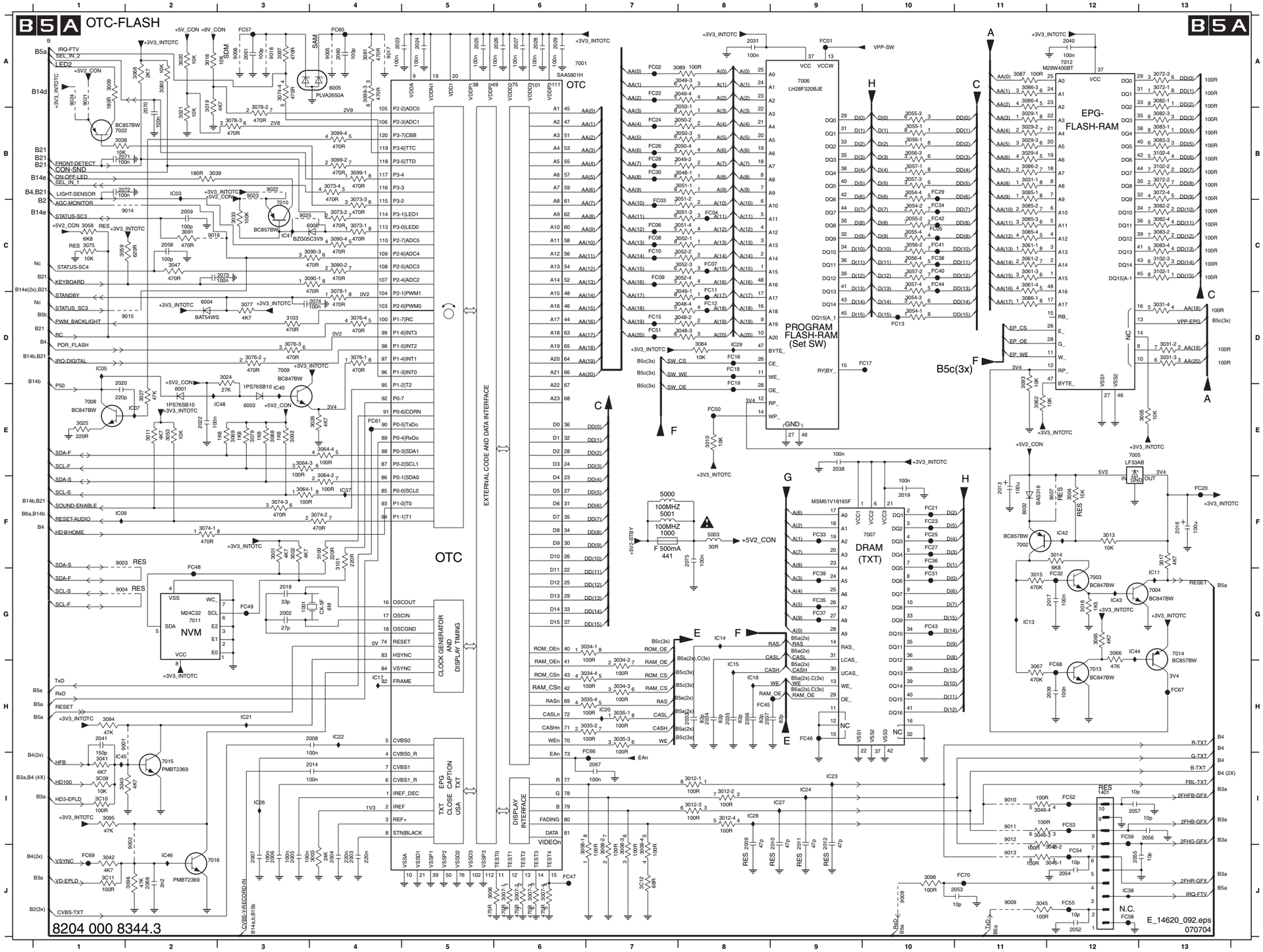
1304 G3	3343 D12	7315 B10
1412 E13	3344 D10	7316 A12
2301 C2	3345 D9	7317 B12
2303 E9	3346 C9	7318 E10
2304 G7	3347 D9	7319 C12
2306 I9	3348 D9	7340 A5
2307 F4	3349 F2	7361 H7
2308 G9	3350 B10	7362 H7
2309 D3	3351 B9	7375 B8
2310 E3	3352 A9	9302 A3
2311 H5	3353 A10	9303 A4
2312 F9	3354 A10	9304 A4
2313 F9	3355 B7	9305 A4
2314 E2	3356 G12	9308 B4
2315 E2	3357 F12	9309 B4
2317 F3	3358 A11	9310 B4
2318 F3	3359 B9	9311 I1
2319 G10	3360 A7	9312 I1
2320 G3	3361 G7	9313 F13
2321 B3	3362 F11	9314 H1
2323 B4	3363 F3	9315 H1
2324 I6	3364-A F11	9316 I6
2325 G5	3364-B G11	9421 B9
2326 E12	3364-C G10	C001 H12
2328 B7	3364-D G10	F309 D11
2329 B6	3365 F13	F311 C2
2330 A6	3366 H11	F312 E9
2331 B6	3367 F11	F329 H9
2332 E2	3369 B11	F347 D12
2333 D10	3383 B13	F348 G3
2334 E8	3384 C12	F349 H3
2335 F10	3386 F13	F350 H3
2336 E8	3387 G2	F351 H3
2337 B12	3388 B5	F352 H3
2338 C12	3389 C13	F353 H3
2340 I11	3390 D9	F362 H3
2341 C12	3391 G12	F364 F4
2342 A7	3394 E9	I302 E2
2343 A9	3395 C3	I303 F4
2344 H3	3396 D3	I304 B11
2345 H2	3397 D2	I305 G5
2346 H2	3398 D3	I306 G5
2347 H2	3399 B5	I307 G7
2348 H2	3442 E12	I308 A12
2349 H2	3443 E13	I309 B11
2363 F3	3453 C2	I310 B12
2386 G12	3454 B1	I311 D8
2393 E13	3455 C1	I312 E3
2395 D3	3459 B11	I313 C11
2396 D3	3465 B9	I314 D9
2397 D3	3467 A8	I315 D8
2398 A3	3470 B8	I316 D9
2429 B4	3471 A8	I317 C12
2431 B3	3472 I6	I319 B11
3302 C4	5301 E2	I320 B10
3304 I11	5302 E2	I321 F3
3305 C3	5303 G1	I326 B7
3306 E9	5304 H1	I330 B4
3307 E9	5305 H1	I331 B4
3308 E9	5306 H1	I332 B3
3310 E9	5307 H1	I333 C2
3311 G7	5308 H1	I338 E3
3312 E11	5313 A12	I339 E4
3313 E11	5314 B12	I357 E8
3314 G8	5315 C12	I358 E4
3315 H8	6301 E12	I359 F4
3316 H10	6303 H9	I363 H5
3317 G9	6304 H9	I365 E10
3318 F9	6306 I5	I366 B3
3319 E12	6307 I5	I367 D10
3320 D3	6308 C2	I368 B7
3321 E3	6309 D11	I369 A8
3322 D12	6310 D9	I370 B10
3323 H5	6311 D12	I371 I12
3324 I5	6312 H8	c200 F3
3325 A9	6313 H9	
3326 H5	6314 H9	
3327 G6	6316 C9	
3328 F9	6317 E12	
3329 E2	6319 D9	
3330 A7	6334 H5	
3331 G3	7301 B4	
3332 A7	7302 A1	
3333 F3	7303 H8	
3334 H5	7304 F2	
3335 A7	7305 B8	
3336 H6	7306 A9	
3337 A11	7309 G13	
3338 A12	7310-A G11	
3339 C3	7310-B G12	
3340 A13	7312 F10	
3341 B13	7313 A11	

Small Signal Board: OTC-Flash



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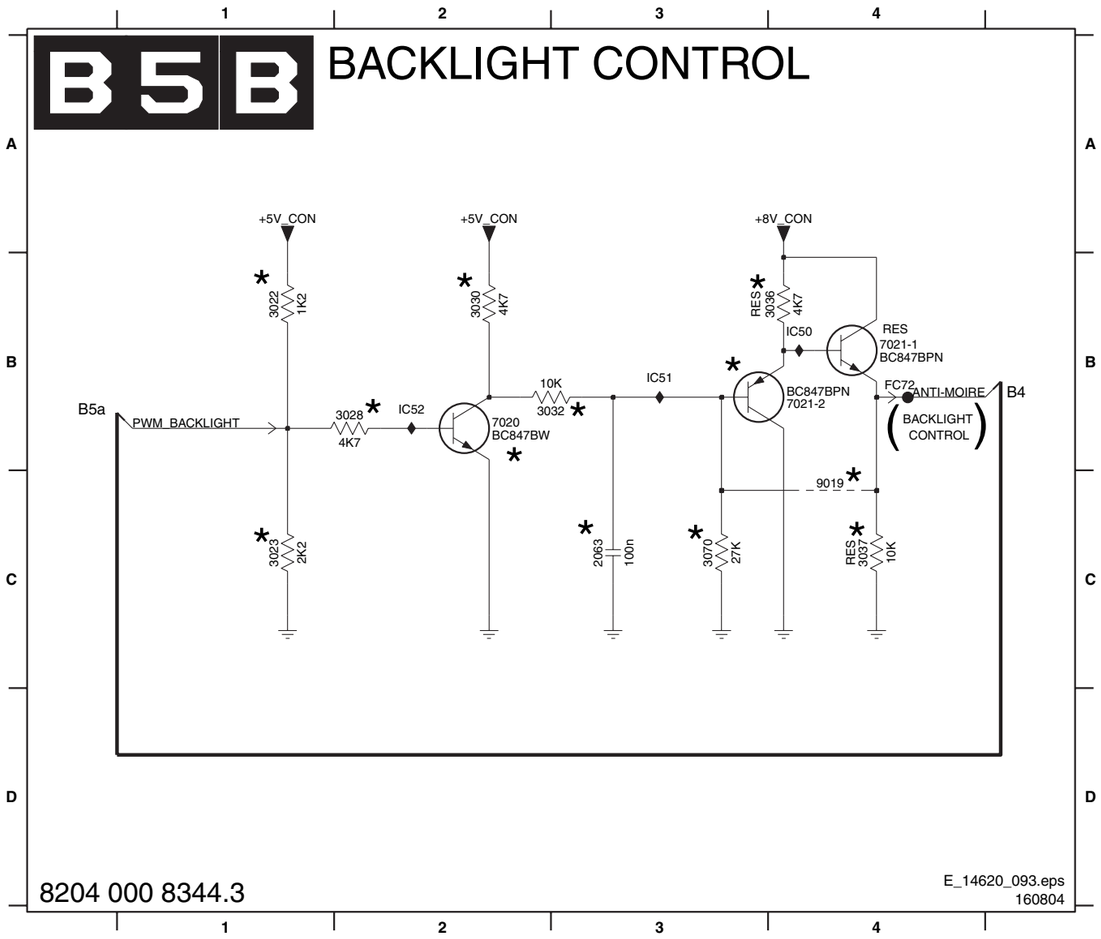
1001 G3	3031-2 D13	3078-2 B3	9018 A3	IC44 G12
1401 I12	3031-3 D13	3078-3 B3	9021 A1	IC45 I1
2002 G3	3031-4 D13	3079 E3	9022 B3	IC46 J2
2003 J4	3033 C3	3080 A2	9023 B3	IC48 E3
2004 J4	3034-1 G7	3081 A4	9024 A1	
2005 J3	3034-2 H7	3082-1 A13	9025 C3	
2006 J3	3034-3 H7	3082-2 C13	FC01 A9	
2007 J3	3034-4 H7	3082-3 B13	FC02 A7	
2008 H4	3035-1 H7	3082-4 C13	FC03 C7	
2009 I8	3035-2 H7	3083-1 B13	FC04 C8	
2010 I9	3035-3 H7	3083-2 C13	FC05 C10	
2011 I9	3035-4 H7	3083-3 B13	FC06 C7	
2012 I9	3038 B1	3083-4 C13	FC07 C8	
2013 F11	3039 B2	3084 D8	FC08 C7	
2014 I4	3040 I1	3085-1 B11	FC09 C7	
2016 F13	3041 I1	3085-2 C11	FC10 C7	
2017 G12	3042 J1	3085-3 C11	FC11 D8	
2018 G3	3045 J11	3085-4 C11	FC12 D8	
2019 F10	3046-1 J12	3086-1 D11	FC13 D10	
2020 E1	3046-2 J12	3086-2 B11	FC15 D7	
2022 E2	3046-3 I11	3086-3 A11	FC16 D8	
2023 A4	3046-4 I11	3086-4 A11	FC17 D10	
2024 A5	3047 C2	3087 A11	FC18 D8	
2025 A5	3048-1 B8	3088 E3	FC19 E8	
2026 A6	3048-2 D8	3089 A8	FC20 F13	
2027 A6	3048-3 D8	3090-1 C4	FC21 F10	
2028 A6	3048-4 D8	3090-2 C4	FC22 A7	
2029 A6	3049-1 D8	3090-3 C4	FC23 F10	
2031 A8	3049-2 B8	3090-4 C4	FC24 B7	
2033 H8	3049-3 A8	3091 C2	FC25 F10	
2034 H8	3049-4 A8	3092 E3	FC26 B7	
2035 H8	3050-1 B8	3093 D11	FC27 F10	
2036 H8	3050-2 B8	3094 H1	FC28 B7	
2037 H8	3050-3 B8	3095 I1	FC29 B10	
2038 E9	3050-4 B8	3096 J2	FC30 B7	
2039 H12	3051-1 B8	3097 A3	FC31 G10	
2040 A12	3051-2 C8	3098 J10	FC32 G12	
2041 H1	3051-3 C8	3099-1 B4	FC33 F9	
2052 J12	3051-4 C8	3099-2 B4	FC34 C10	
2053 J11	3052-1 C8	3099-3 A4	FC35 G9	
2054 J12	3052-2 C8	3099-4 B4	FC36 F10	
2055 J12	3052-3 C8	3100 F4	FC37 G9	
2056 I13	3052-4 C8	3101 F4	FC38 C10	
2057 I12	3053 E2	3102-1 C13	FC39 G9	
2058 C2	3054-1 D10	3102-2 B13	FC40 C10	
2059 C2	3054-2 C10	3102-3 C13	FC41 C10	
2060 A4	3054-3 D10	3102-4 B13	FC42 C10	
2061 A3	3054-4 B10	3103 D3	FC43 G10	
2067 I7	3055-1 B10	3C09 I1	FC44 C10	
2068 J2	3055-2 C10	3C10 I1	FC45 H8	
2070 B2	3055-3 B10	3C11 J1	FC46 H9	
2071 B1	3055-4 C10	3C12 J7	FC47 J6	
2072 B1	3056-1 B10	5000 F7	FC48 G2	
2073 C3	3056-2 C10	5001 F7	FC49 G3	
2074 D4	3056-3 B10	5003 F8	FC50 E8	
2075 F8	3056-4 C10	6001 E2	FC51 D7	
3001 F3	3057-1 B10	6002 F11	FC52 I12	
3002 F3	3057-2 C10	6003 E3	FC53 I12	
3003 J4	3057-3 B10	6004 D2	FC54 J12	
3004 F12	3057-4 C10	6005 A4	FC55 J12	
3005 E13	3058 C1	6006 C4	FC56 I12	
3006 J5	3059 C1	7001 A6	FC57 A3	
3007-1 J6	3061-1 C11	7002 F11	FC58 J12	
3007-2 J6	3061-2 C11	7003 G12	FC60 A4	
3007-3 J6	3061-3 C11	7004 G13	FC61 E4	
3007-4 J6	3061-4 C11	7005 E12	FC66 I7	
3008-1 J6	3062 E11	7006 A9	FC67 H13	
3008-2 J7	3064-1 F3	7007 F10	FC68 H12	
3008-3 J7	3064-2 F4	7008 E1	FC69 J1	
3008-4 J7	3064-3 E3	7009 D3	FC70 J11	
3009 A1	3064-4 E4	7010 C3	IC03 B2	
3010 E8	3065 G12	7011 G2	IC05 D1	
3011 E2	3066 G12	7012 A12	IC07 E2	
3012-1 I8	3067 H11	7013 H12	IC09 F1	
3012-2 I8	3068 A2	7014 G13	IC11 G13	
3012-3 I8	3069 E3	7015 I2	IC13 G11	
3012-4 I8	3072-1 A13	7016 J2	IC14 G8	
3013 F12	3072-2 B13	7022 B1	IC15 H8	
3014 F12	3072-3 A13	9001 H2	IC17 H4	
3015 G11	3072-4 B13	9002 I2	IC18 H8	
3016 G12	3073-1 C4	9003 F1	IC20 H7	
3017 F13	3073-2 C4	9004 G1	IC21 H3	
3018 A2	3073-3 C4	9005 A4	IC22 H4	
3019 A2	3073-4 B4	9006 A3	IC23 I9	
3020 A2	3074-1 F2	9007 F12	IC24 I9	
3021 B2	3074-2 F4	9008 J10	IC26 I3	
3024 D3	3074-3 F3	9009 J11	IC27 I9	
3025 E1	3074-4 A3	9010 I11	IC28 I8	
3026 E4	3075 C1	9011 I11	IC29 D8	
3027 E2	3076-1 D4	9012 I11	IC37 F4	
3029-1 B11	3076-2 D3	9013 J11	IC38 J12	
3029-2 B11	3076-3 D3	9014 C2	IC40 E3	
3029-3 B11	3076-4 D4	9015 D2	IC41 C3	
3029-4 B11	3077 D3	9016 C2	IC42 F12	

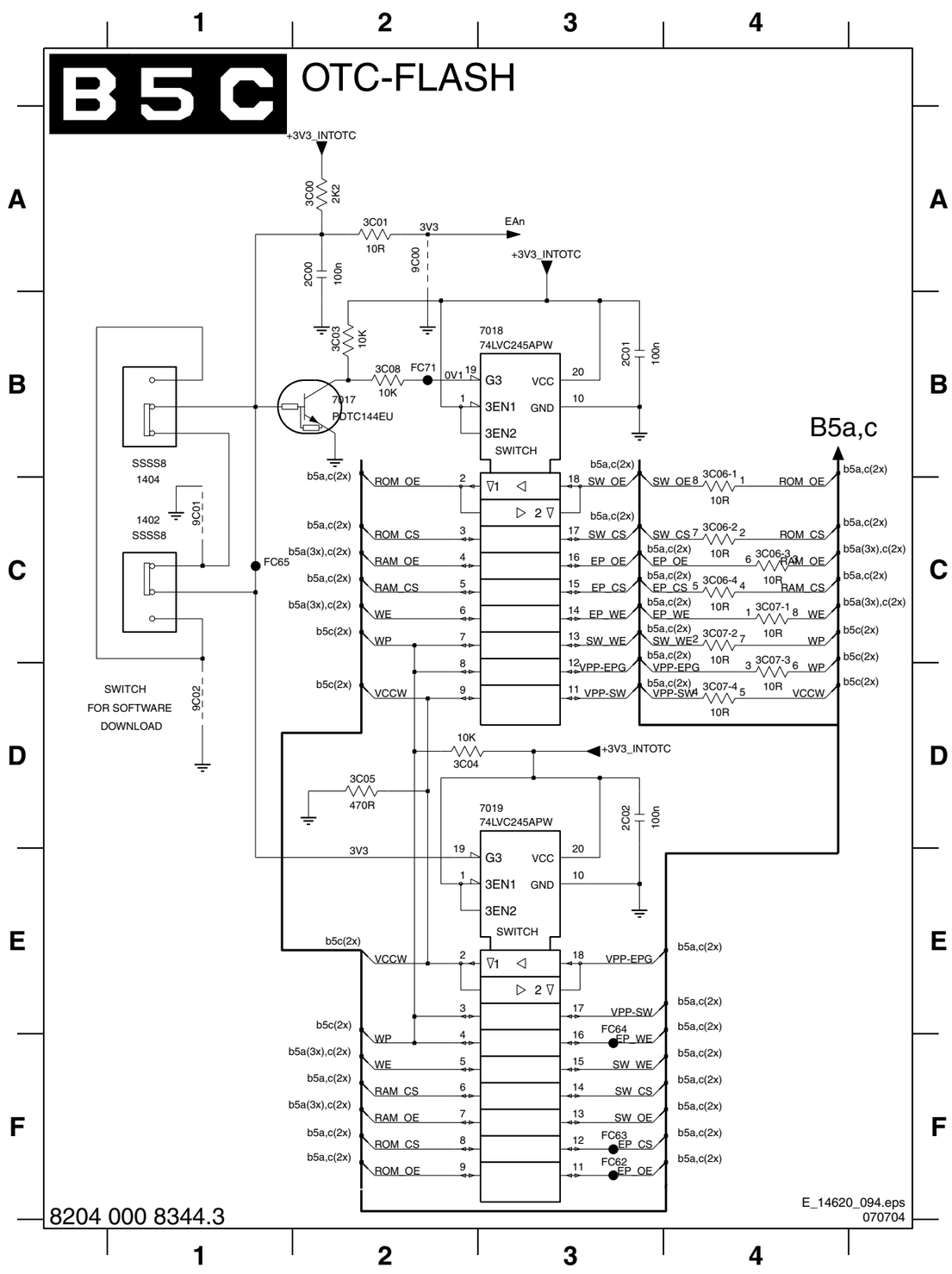
Small Signal Board: Backlight Control

2063 C3 3023 C1 3030 B2 3036 B4 3070 C3 7021-1 B4 9019 C4 IC50 B4 IC52 B2
3022 B1 3028 B2 3032 B2 3037 C4 7020 B2 7021-2 B4 FC72 B4 IC51 B3



Small Signal Board: OTC-Flash

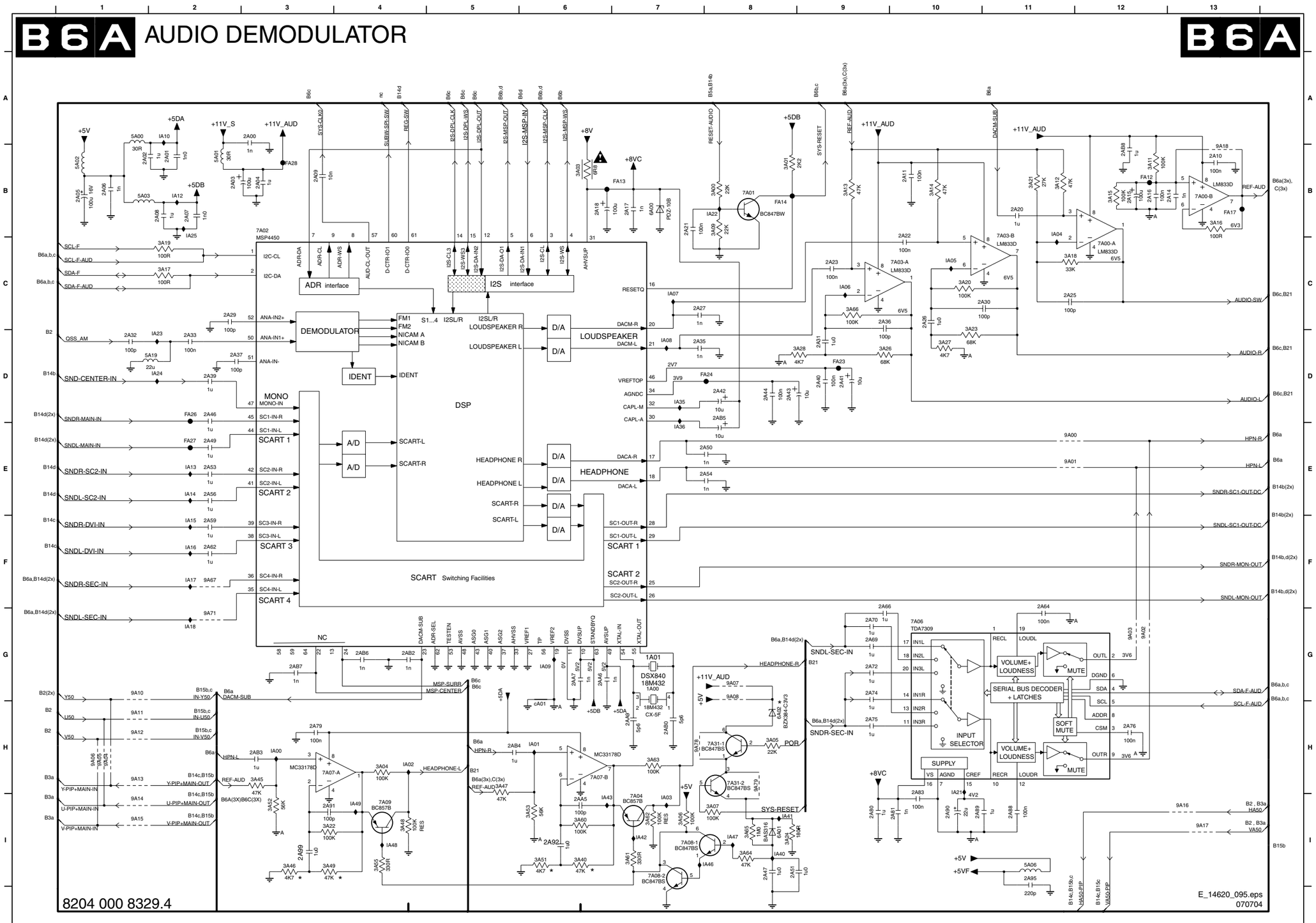
1402 C1 2C01 B3 3C01 A2 3C05 D2 3C06-3 C4 3C07-2 C4 3C08 B2 7019 D3 9C02 D1 FC64 E3
1404 B1 2C02 D3 3C03 B2 3C06-1 C4 3C06-4 C4 3C07-3 D4 7017 B2 9C00 A2 FC62 F3 FC65 C1
2C00 A2 3C00 A2 3C04 D2 3C06-2 C4 3C07-1 C4 3C07-4 D4 7018 B3 9C01 C1 FC63 F3 FC71 B2



Small Signal Board: Audio Demodulator

B6A AUDIO DEMODULATOR

B6A



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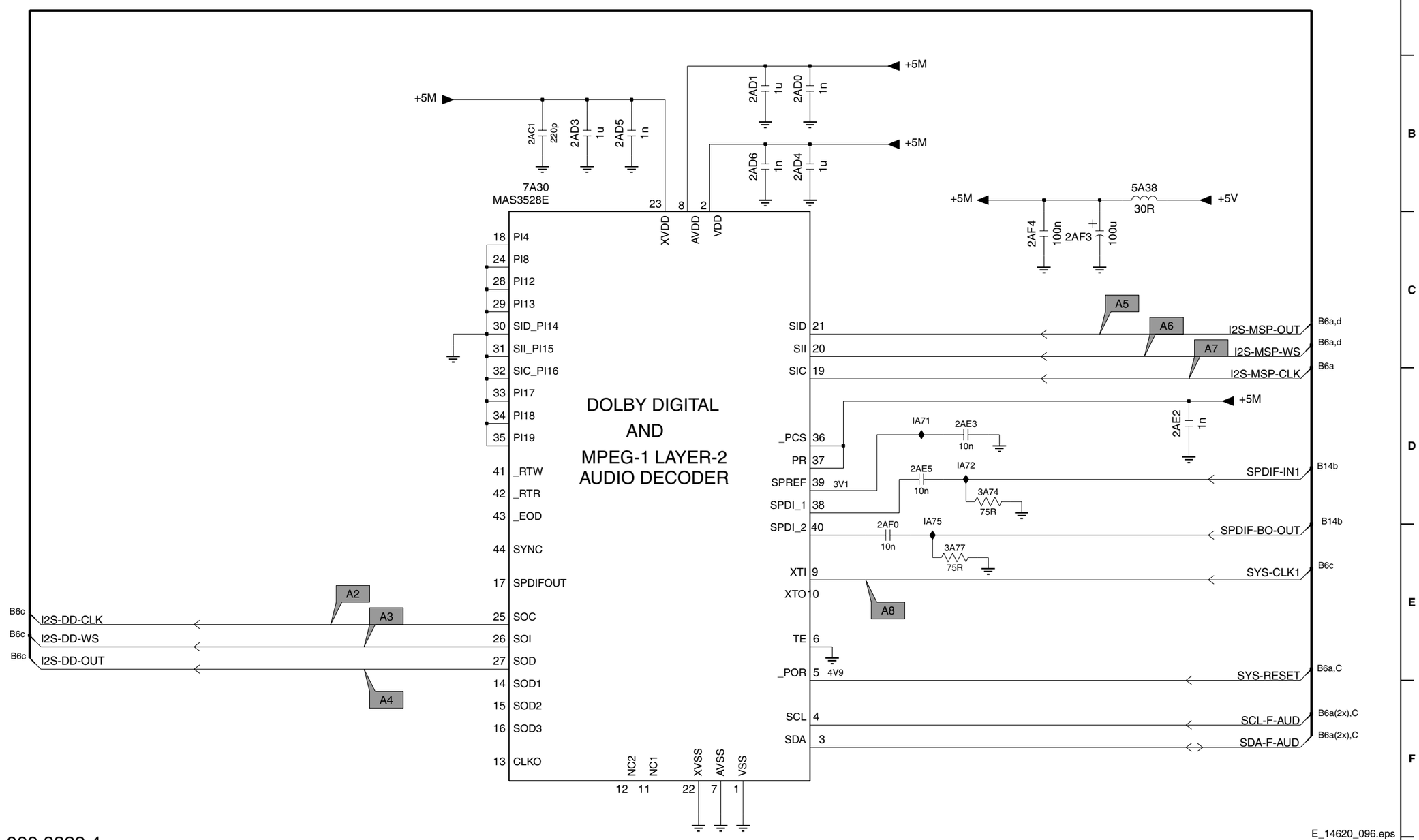
2A00 A3	3A16 B13	IA08 D7
2A01 B2	3A17 C2	IA09 G6
2A02 B1	3A18 C11	IA10 A2
2A03 B2	3A19 C2	IA12 B2
2A04 B3	3A20 C10	IA13 E2
2A05 B1	3A21 B11	IA14 E2
2A06 B1	3A22 I3	IA15 F2
2A07 B2	3A23 D10	IA16 F2
2A08 B2	3A24 I8	IA17 F2
2A09 B3	3A26 D9	IA18 G2
2A10 B13	3A27 D10	IA21 I10
2A11 B10	3A28 D9	IA22 B8
2A14 B13	3A40 I6	IA23 D2
2A15 B12	3A45 H3	IA24 D2
2A16 B12	3A46 I3	IA25 C2
2A17 B7	3A47 H5	IA35 D7
2A18 B6	3A48 I4	IA36 E7
2A20 B11	3A49 I3	IA40 I8
2A21 B7	3A51 I6	IA41 I8
2A22 C10	3A52 I3	IA42 I7
2A23 C9	3A53 I6	IA43 I6
2A25 C11	3A55 I4	IA46 I8
2A26 C10	3A60 I6	IA47 I8
2A27 C7	3A61 I7	IA48 I4
2A29 C2	3A62 I7	IA49 I4
2A30 C11	3A63 H7	cA01 H6
2A31 D9	3A64 I8	
2A32 D1	3A65 I8	
2A33 D2	3A66 C9	
2A35 D7	5A00 A1	
2A36 C9	5A01 B2	
2A37 D2	5A02 B1	
2A39 D2	5A03 B1	
2A40 D9	5A06 I11	
2A41 D9	5A19 D2	
2A42 D8	6A00 B7	
2A43 D8	6A01 I8	
2A44 D8	6A02 H8	
2A46 D2	7A00-A C12	
2A47 I8	7A00-B B13	
2A49 E2	7A01 B8	
2A50 E8	7A02 B3	
2A51 I8	7A03-A C10	
2A53 E2	7A03-B C11	
2A54 E8	7A04 I7	
2A56 E2	7A06 G10	
2A59 F2	7A07-A H3	
2A62 F2	7A07-B H6	
2A64 G11	7A08-1 I7	
2A66 G9	7A08-2 I7	
2A69 G9	7A09 I4	
2A70 G9	7A31-1 H8	
2A72 G9	7A31-2 H8	
2A74 G9	9A00 E11	
2A75 H9	9A01 E11	
2A76 H12	9A02 G12	
2A79 H3	9A03 G12	
2A80 I9	9A04 H1	
2A81 I10	9A05 H1	
2A83 I10	9A06 H1	
2A88 I11	9A07 G8	
2A89 I10	9A08 G8	
2A90 I10	9A10 G1	
2A91 I3	9A11 H1	
2A92 I6	9A12 H1	
2A95 I11	9A13 H1	
2A99 I3	9A14 I1	
2AA5 I6	9A15 I1	
2AA6 G6	9A16 I13	
2AA7 G6	9A17 I13	
2AA9 H7	9A18 B13	
2AB0 H7	9A67 F2	
2AB2 G4	9A71 G2	
2AB3 H3	9A78 H7	
2AB4 H5	9A79 H8	
2AB5 D8	FA12 B12	
2AB6 G4	FA13 B7	
2AB7 G3	FA14 B8	
2AB8 B12	FA17 B13	
3A00 B8	FA23 D9	
3A01 B8	FA24 D8	
3A03 B6	FA26 D2	
3A04 H4	FA27 E2	
3A05 H8	FA28 B3	
3A06 I7	IA00 H3	
3A07 I8	IA01 H6	
3A09 B8	IA02 H4	
3A11 B12	IA03 I7	
3A12 B11	IA04 B11	
3A13 B9	IA05 C10	

Small Signal Board: Dolby Digital Decoder

DOLBY DIGITAL DECODER

2AC1 B4
2AD0 B6
2AD1 B6
2AD3 B4
2AD4 B6
2AD5 B5
2AD6 B6
2AE2 D8
2AE3 D7
2AE5 D7
2AF0 E6
2AF3 C8
2AF4 C7
3A74 D7
3A77 E7
5A38 B8
7A30 B4
IA71 D7
IA72 D7
IA75 D7



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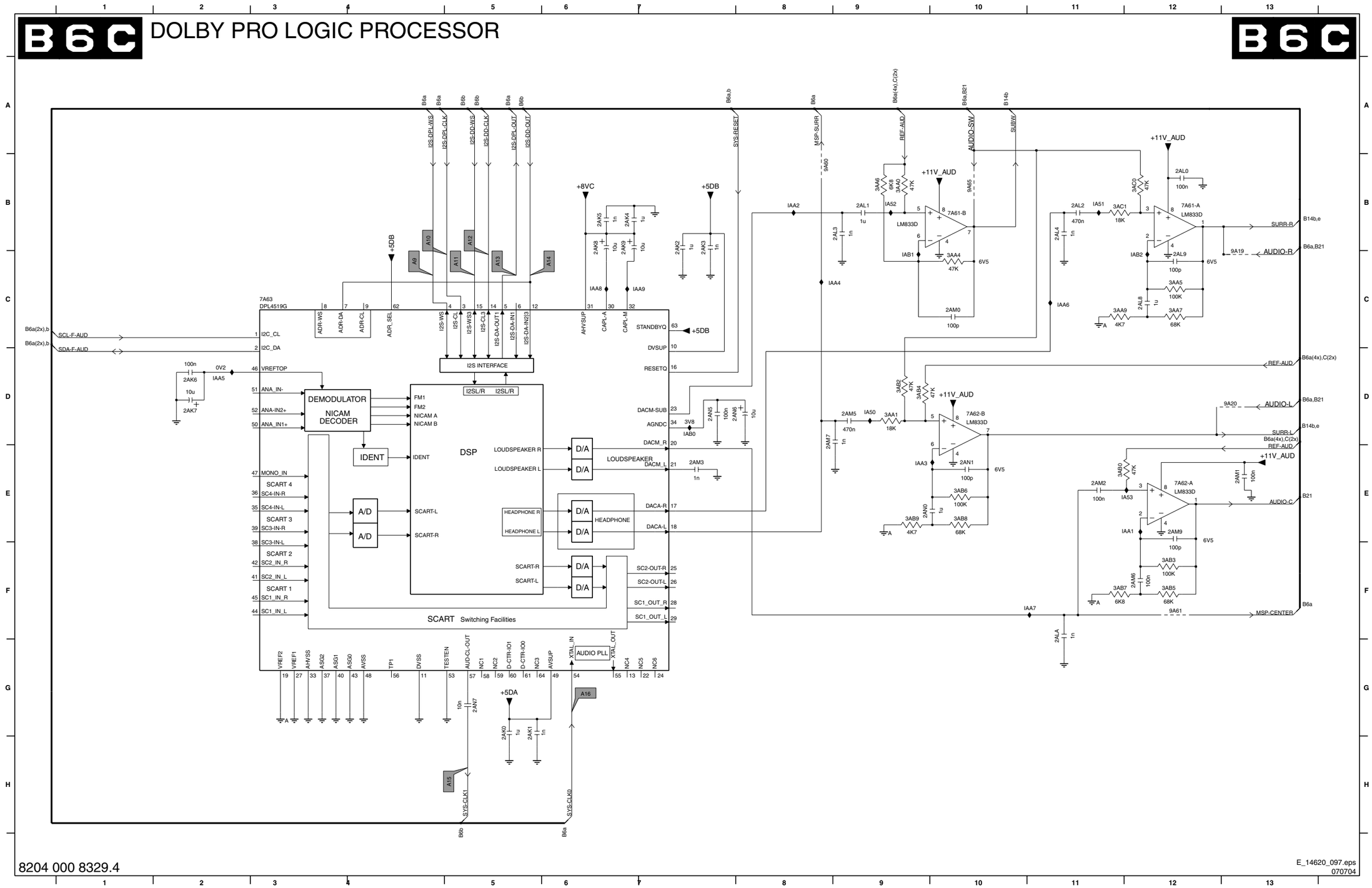
Small Signal Board: Dolby Pro Logic Processor



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2AK0 G5
2AK1 G5
2AK2 B7
2AK3 B7
2AK4 B6
2AK5 B6
2AK6 D2
2AK7 D2
2AK8 B6
2AK9 B6
2AL0 B12
2AL1 B9
2AL2 B11
2AL3 B9
2AL4 B11
2AL8 C12
2AL9 C12
2ALA F11
2AM0 C10
2AM1 E13
2AM2 E11
2AM3 E7
2AM5 D9
2AM6 F12
2AM7 D8
2AM9 E12
2AN0 E9
2AN1 E10
2AN5 D7
2AN6 D8
2AN7 G5
3AA0 B9
3AA1 D9
3AA4 C10
3AA5 C12
3AA6 B9
3AA7 C12
3AA9 C11
3AB0 E11
3AB2 D9
3AB3 F12
3AB4 D9
3AB5 F12
3AB6 E10
3AB7 F11
3AB8 E10
3AB9 E9
3AC0 B12
3AC1 B11
7A61-A B12
7A61-B B10
7A62-A E12
7A62-B D10
7A63 C3
9A19 C13
9A20 D13
9A60 B8
9A61 F12
9A65 B10
IA50 D9
IA51 B11
IA52 B9
IA53 E12
IAA1 E12
IAA2 B8
IAA3 E9
IAA4 C9
IAA5 D2
IAA6 C11
IAA7 F11
IAA8 C6
IAA9 C7
IAB0 D7
IAB1 C9
IAB2 C12

Small Signal Board: Audio Delay

B6D AUDIO DELAY

B6D

2A12 B2
2A13 D2
2A19 F5
2A24 D8
2A34 D9
2A38 B9
2A45 B7
3A02 F5
3A67 E5
5A07 B9
7A11 A1
7A12 D1
7A13 E5
7A14 D7
7A15 D8
7A16 A3
9A21 D9
9A22 E9
9A23 E9
9A24 E9
9A25 F8
9A72 D9
9A73 D9
9A74 D9
9A75 D9
FA00 B9
FA01 E5
FA02 E5
FA03 D9
FA04 E6

8204 000 8329.4

E_14620_098.eps
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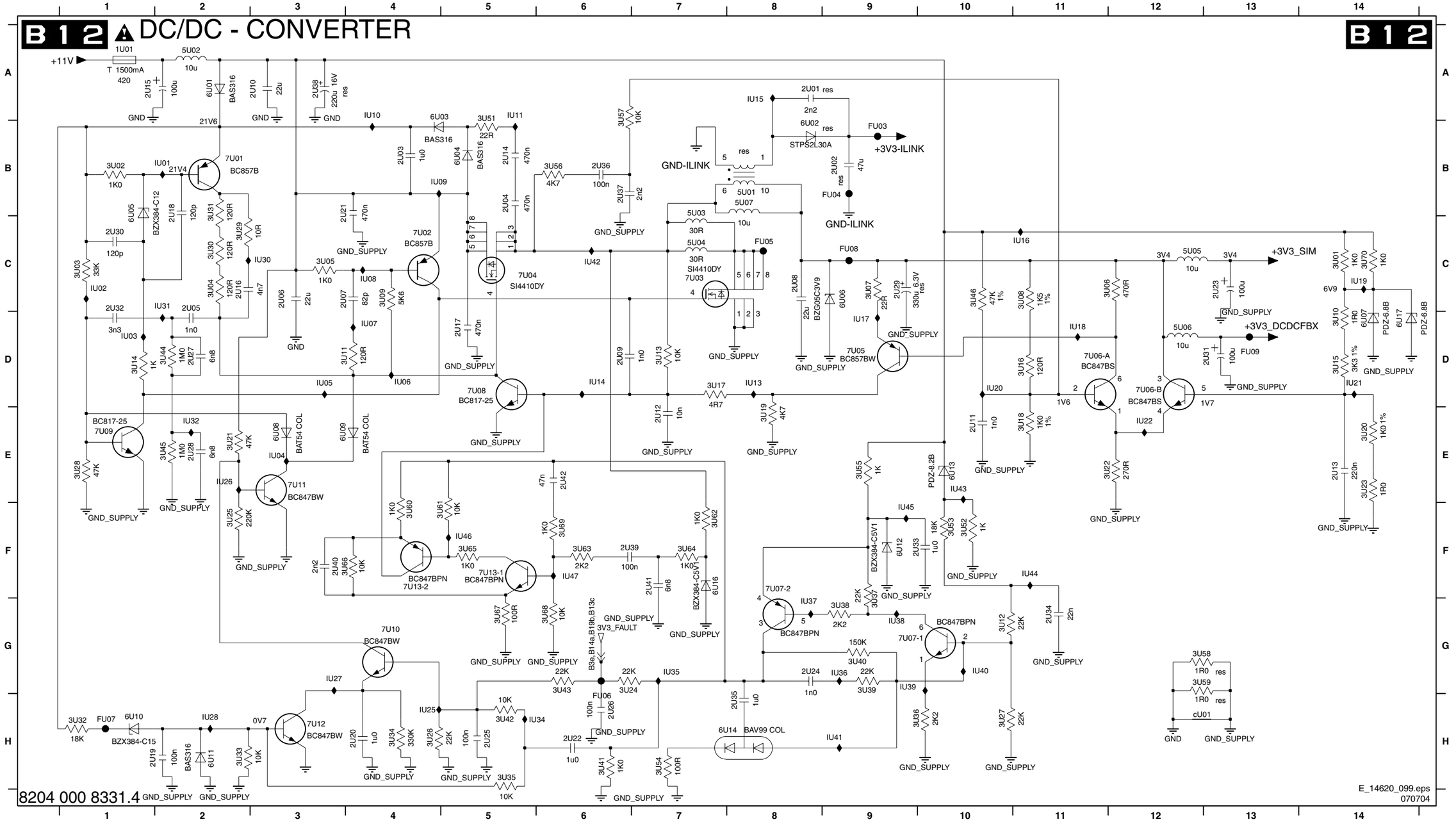
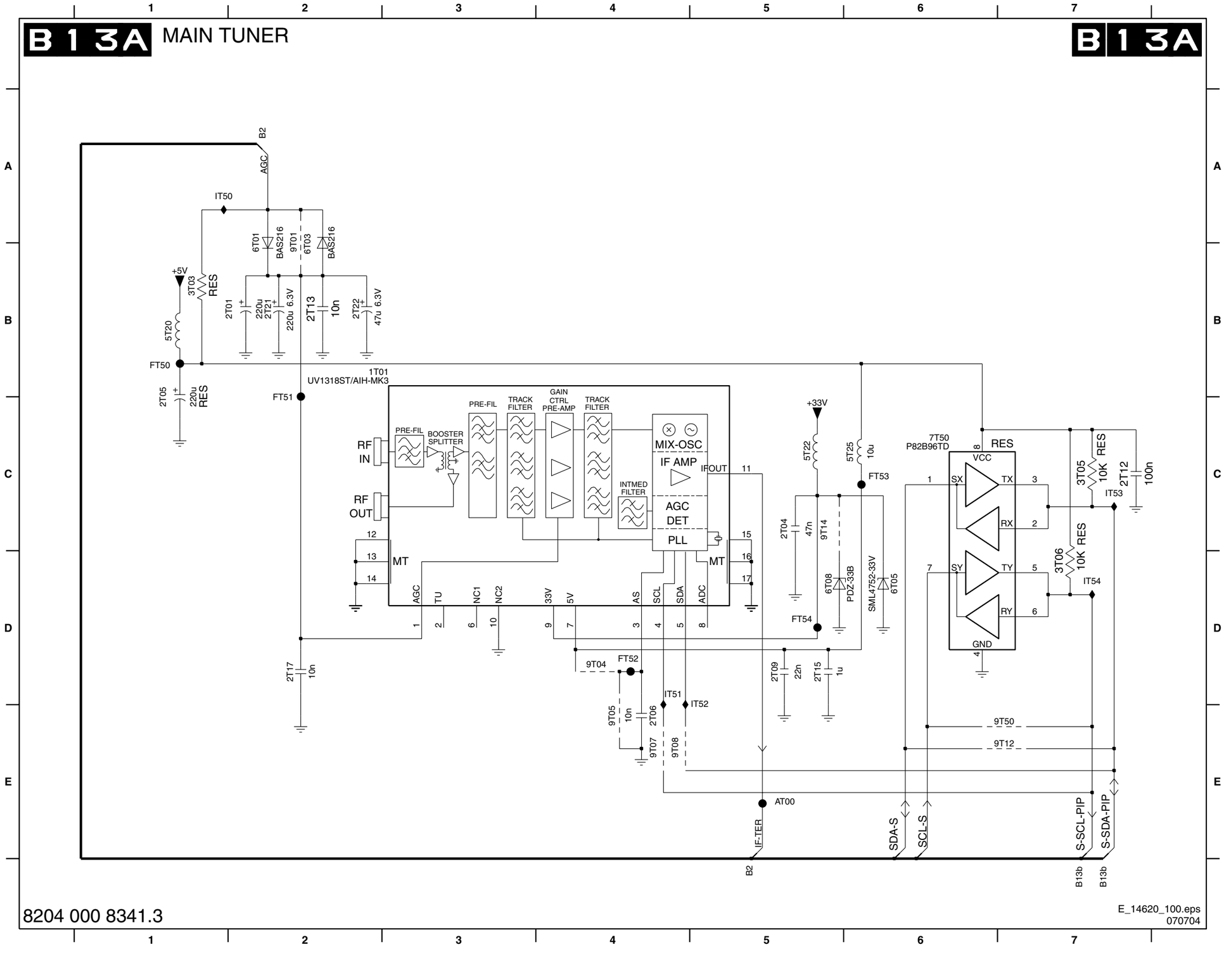
Small Signal Board: DC/DC Converter

1U01 A1	2U08 C8	2U16 C2	2U24 G8	2U32 C1	2U40 F3	3U06 C12	3U14 D1	3U22 E12	3U30 C2	3U38 G9	3U46 C10	3U58 G12	3U66 F4	5U04 C7	6U05 B1	6U13 E10	7U05 D9	7U11 E3	FU07 H1	IU06 D4	IU15 A8	IU25 H4	IU35 G7	IU43 E10
2U01 A8	2U09 D6	2U17 D5	2U25 H5	2U33 F10	2U41 F7	3U07 C9	3U15 D14	3U23 E14	3U31 B2	3U39 G9	3U51 B5	3U59 G12	3U67 G5	5U05 C12	6U06 C9	6U14 H8	7U06-A D12	7U12 H3	FU08 C9	IU07 D4	IU16 C11	IU26 E2	IU36 G9	IU44 F11
2U02 B9	2U10 A3	2U18 B2	2U26 H6	2U34 G11	3U01 C14	3U08 C11	3U16 D11	3U24 G6	3U32 H1	3U40 G9	3U52 F10	3U60 F4	3U68 G6	5U06 D12	6U07 D14	6U16 F7	7U06-B D12	7U13-1 F5	FU09 D13	IU08 C4	IU17 D9	IU27 G3	IU37 G8	IU45 F9
2U03 B4	2U11 E10	2U19 H2	2U27 D2	2U35 H8	3U02 B1	3U09 C4	3U17 D7	3U25 F2	3U33 H2	3U41 H6	3U53 F10	3U61 F5	3U69 F6	5U07 B8	6U08 E3	6U17 D14	7U07-1 G10	7U13-2 F4	IU01 B2	IU09 B4	IU18 D11	IU28 H2	IU38 G9	IU46 F5
2U04 B5	2U12 E7	2U20 H4	2U28 E2	2U36 B6	3U02 B1	3U10 D14	3U18 E11	3U26 H4	3U34 H4	3U42 H5	3U54 H7	3U62 F7	3U70 C14	6U01 A2	6U09 E3	7U01 B2	7U07-2 F8	FU03 B9	IU02 C1	IU10 A4	IU19 C14	IU30 C3	IU39 G9	IU47 F6
2U05 C2	2U13 E14	2U21 B4	2U29 C9	2U37 B6	3U03 C1	3U11 D4	3U19 E8	3U27 H10	3U35 H5	3U43 G6	3U55 E9	3U63 F6	5U01 B8	6U02 A8	6U10 H1	7U02 C4	7U08 D5	FU04 B9	IU03 D1	IU11 A5	IU20 D10	IU31 C2	IU40 G10	cU01 H12
2U06 C3	2U14 B5	2U22 H6	2U30 C1	2U38 A3	3U04 C2	3U12 G10	3U20 E14	3U28 E1	3U36 H10	3U44 D2	3U56 B6	3U64 F7	5U02 A2	6U03 A4	6U11 H2	7U03 C7	7U09 E1	FU05 C8	IU04 E3	IU13 D8	IU21 D14	IU32 E2	IU41 H9	
2U07 C4	2U15 A1	2U23 C13	2U31 D13	2U39 F6	3U05 C3	3U13 D7	3U21 E2	3U29 C2	3U37 G9	3U45 E2	3U57 A6	3U65 F5	5U03 B7	6U04 B5	6U12 F9	7U04 C5	7U10 G4	FU06 H6	IU05 D3	IU14 D6	IU22 E12	IU34 H6	IU42 C6	



Small Signal Board: Main Tuner

1T01 B3	2T05 B1	2T12 C7	2T17 D2	3T03 B1	5T20 B1	6T01 A2	6T08 D5	9T04 D4	9T08 E4	9T50 E7	FT51 C2	FT54 D5	IT52 D5
2T01 B2	2T06 E4	2T13 B2	2T21 B2	3T05 C7	5T22 C5	6T03 B2	7T50 C6	9T05 E4	9T12 E7	AT00 E5	FT52 D4	IT50 A1	IT53 C7
2T04 C5	2T09 D5	2T15 D5	2T22 B2	3T06 D7	5T25 C6	6T05 D6	9T01 A2	9T07 E4	9T14 C5	FT50 B1	FT53 C6	IT51 D4	IT54 D7



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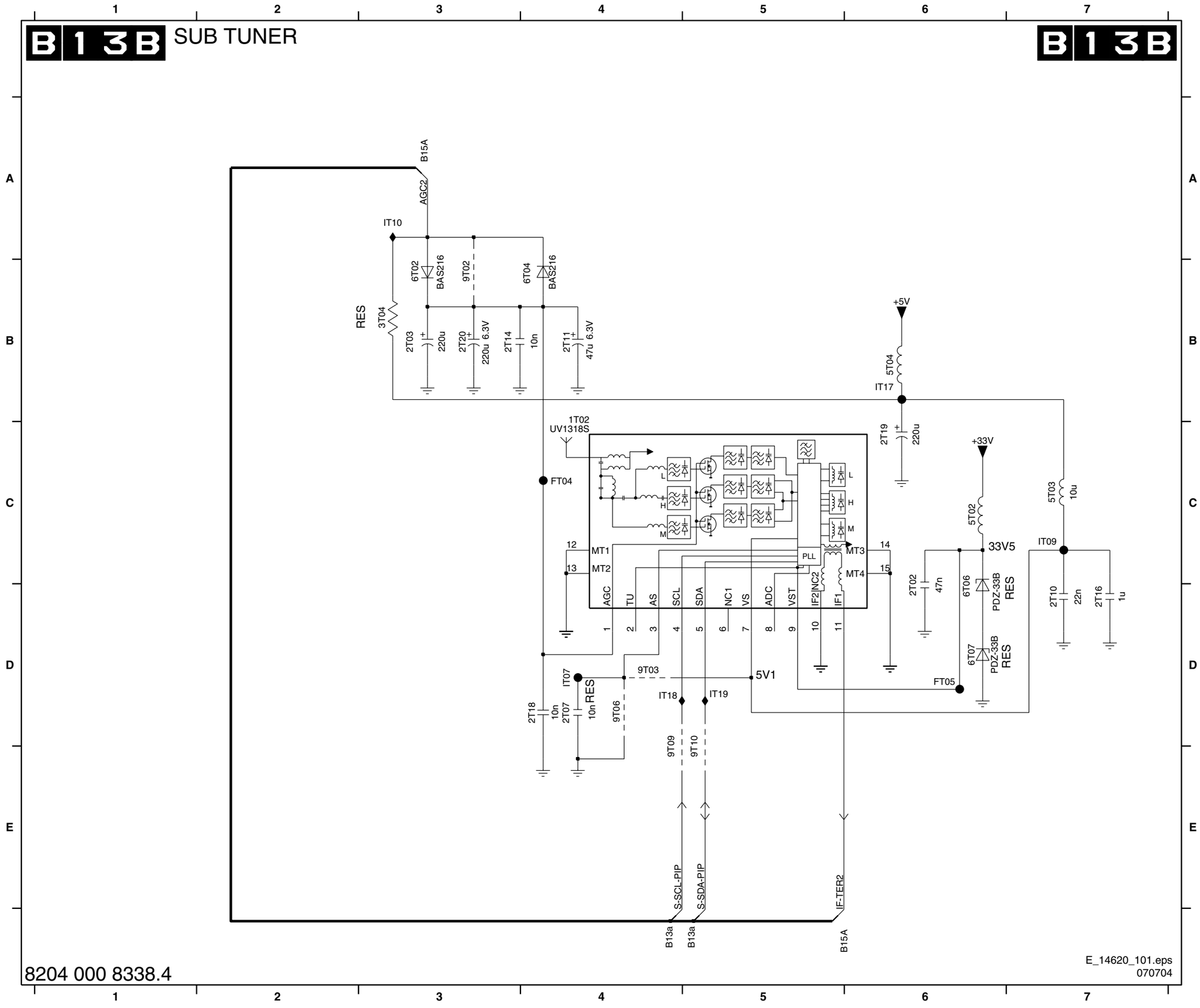
Small Signal Board: Sub Tuner

B13B SUB TUNER



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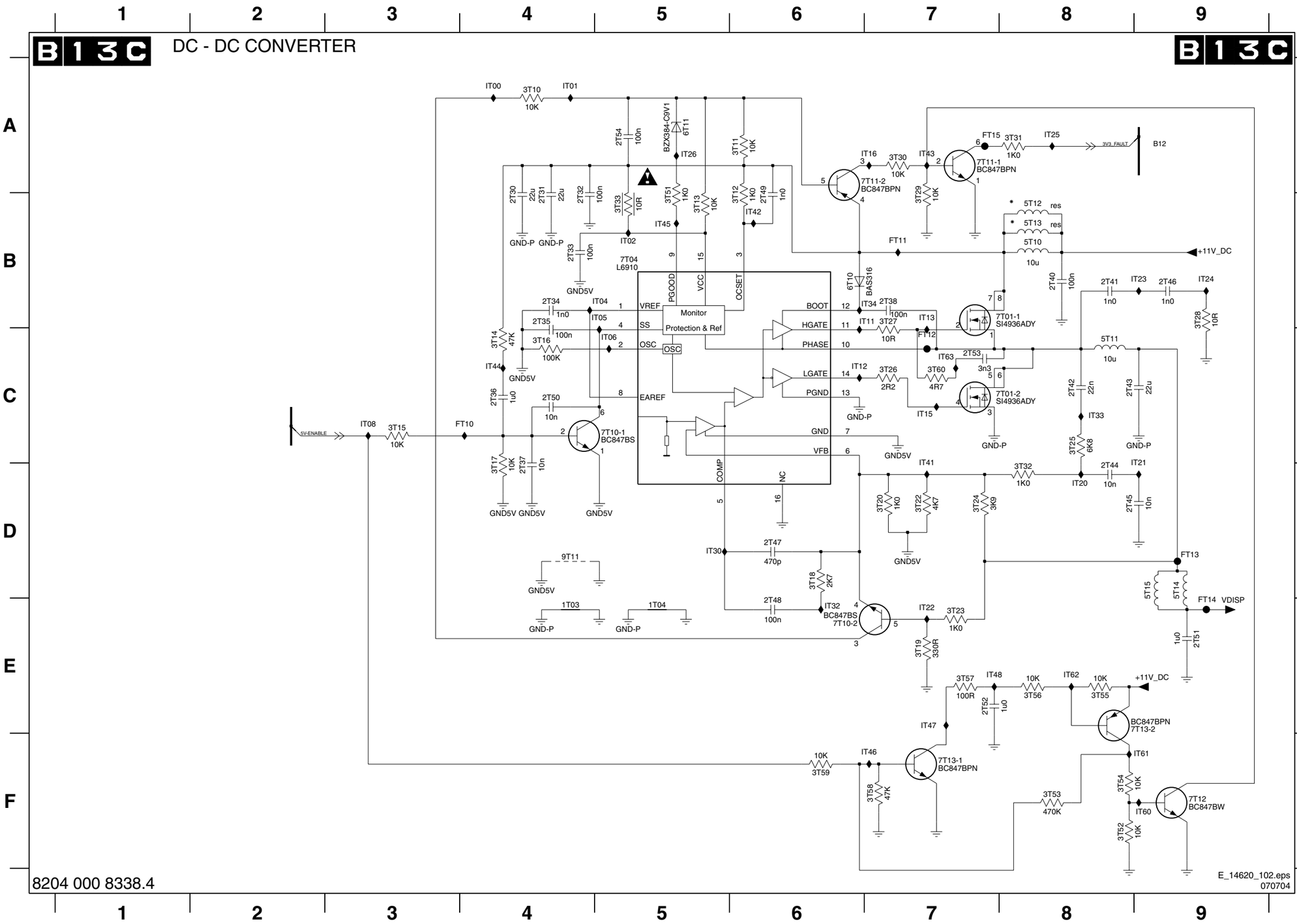
8204 000 8338.4

Small Signal Board: DC/DC Converter

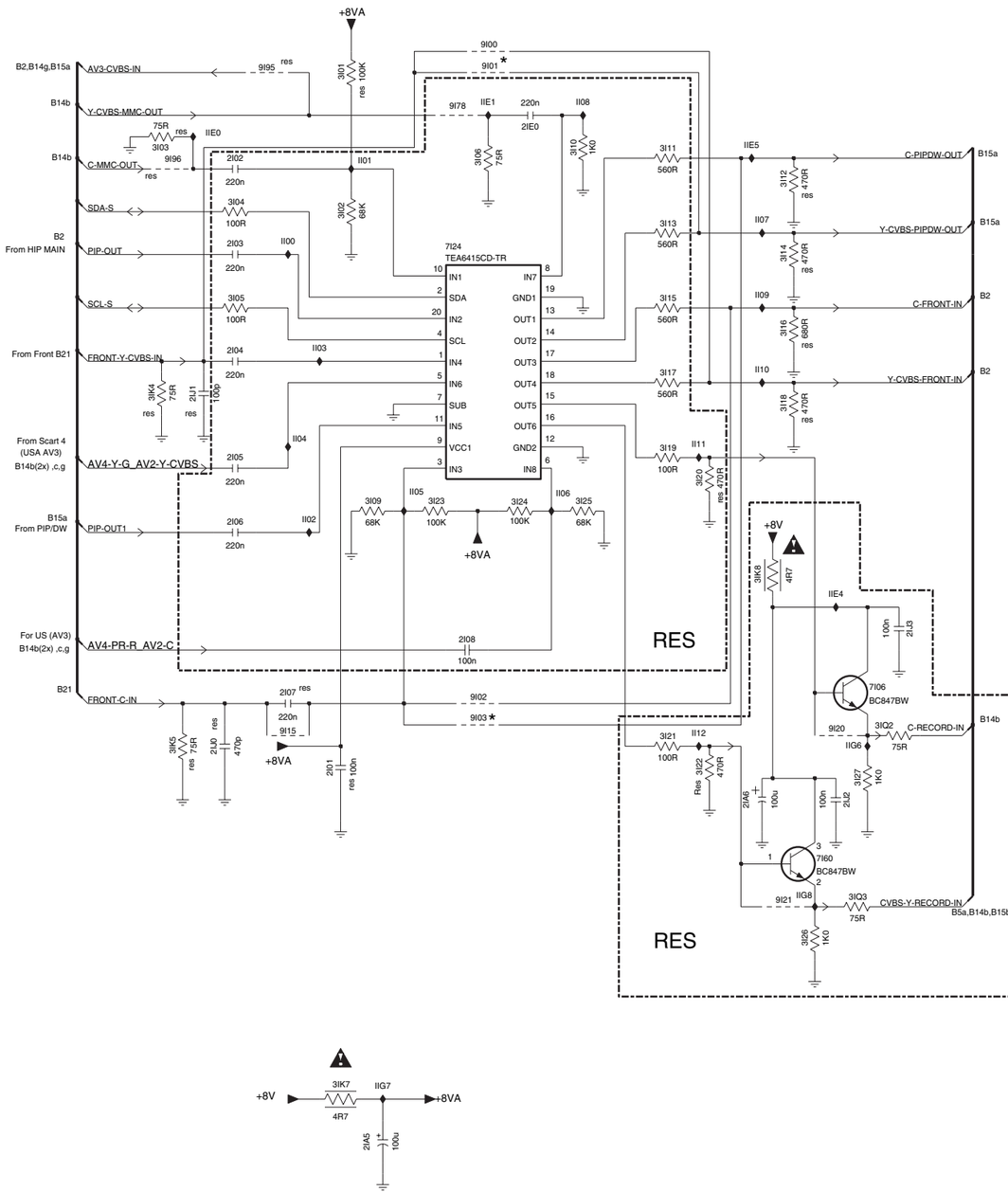


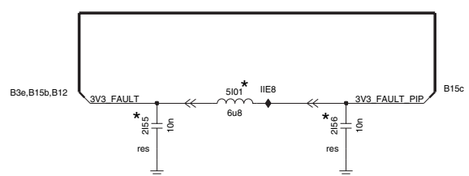
1T03 E4
1T04 E5
2T30 B4
2T31 B4
2T32 B4
2T33 B4
2T34 B4
2T35 B4
2T36 C4
2T37 D4
2T38 B7
2T40 B8
2T41 B8
2T42 C8
2T43 C8
2T44 D8
2T45 D8
2T46 B9
2T47 D6
2T48 E6
2T49 B6
2T50 C4
2T51 E9
2T52 E7
2T53 C7
2T54 A5
3T10 A4
3T11 A6
3T12 B6
3T13 B5
3T14 C4
3T15 C3
3T16 C4
3T17 D4
3T18 D6
3T19 E7
3T20 D7
3T22 D7
3T23 E7
3T24 D7
3T25 C8
3T26 C7
3T27 B7
3T28 B9
3T29 B7
3T30 A7
3T31 A8
3T32 D8
3T33 B5
3T51 B5
3T52 F8
3T53 F8
3T54 F8
3T55 E8
3T56 E8
3T57 E7
3T58 F7
3T59 F6
3T60 C7
5T10 B8
5T11 C8
5T12 B8
5T13 B8
5T14 D9
5T15 D9
6T10 B6
6T11 A5
7T01-1 B7
7T01-2 C7
7T04 B5
7T10-1 C5
7T10-2 E6
7T11-1 A7
7T11-2 A6
7T12 F9
7T13-1 F7
7T13-2 E8
9T11 D4
FT10 C4
FT11 B7
FT12 C7
FT13 D9
FT14 E9
FT15 A7
IT00 A4
IT01 A4
IT02 B5
IT04 B5
IT05 B5
IT06 C5
IT08 C3
IT11 B7
IT12 C6
IT13 B7
IT15 C7
IT16 A7
IT20 D8
IT21 C9
IT22 E7
IT23 B9
IT24 B9
IT25 A8
IT26 A5
IT30 D5
IT32 E6
IT33 C8
IT34 B7
IT41 C7
IT42 B6
IT43 A7
IT44 C4
IT45 B5
IT46 F7
IT47 E7
IT48 E7
IT60 F9
IT61 F9
IT62 E8
IT63 C7

Small Signal Board: I/O 1

B 14A I/O 1

B 14A





8204 000 8390.3

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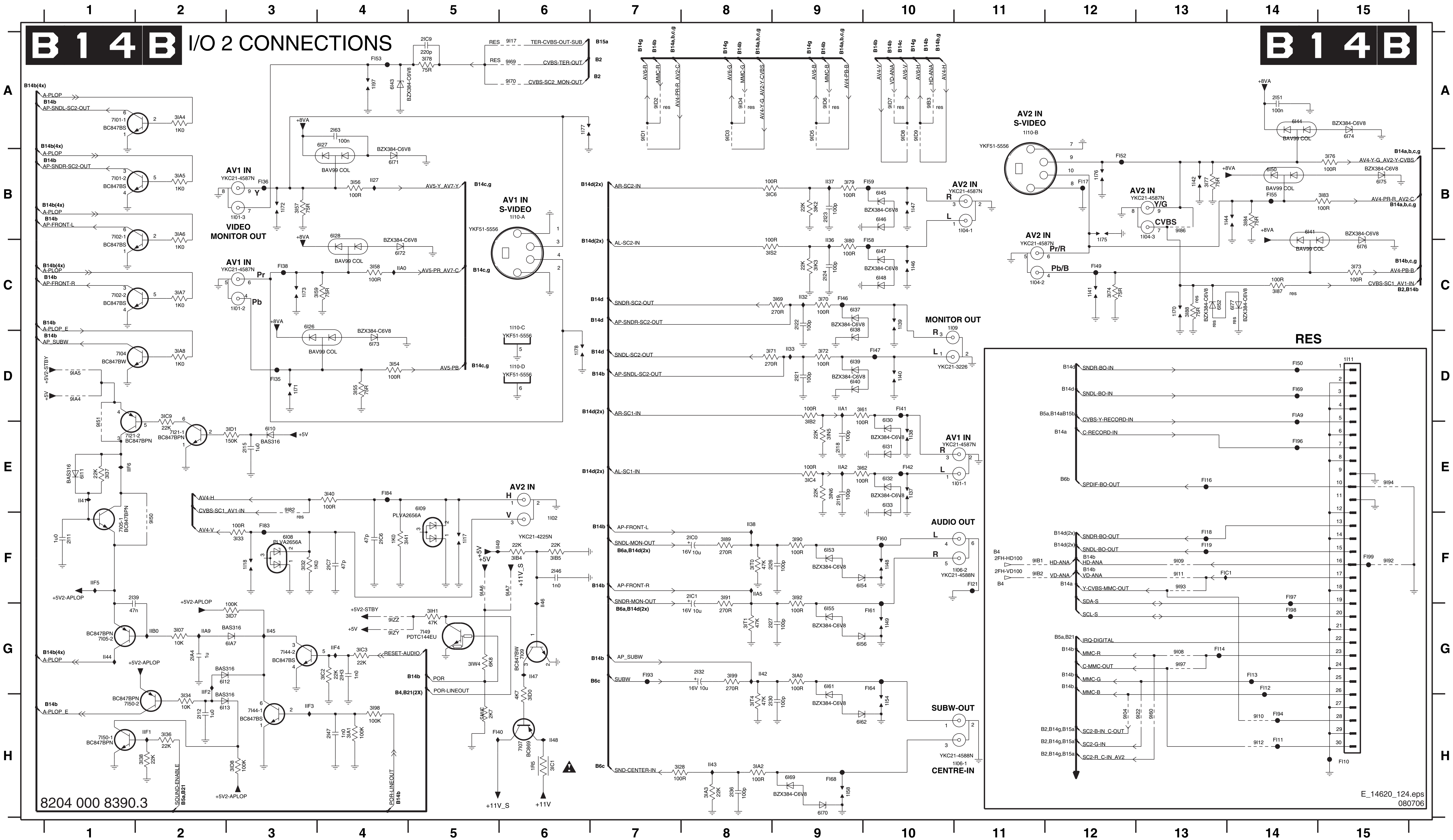
2I01 F4
2I02 B3
2I03 C3
2I04 D3
2I05 D3
2I06 E3
2I07 F4
2I08 F5
2I55 I9
2I56 I11
2IA5 I4
2IA6 G7
2IE0 B5
2IJ0 F3
2IJ1 D3
2IJ2 G7
2IJ3 E8
3I01 B4
3I02 C4
3I03 B3
3I04 C3
3I05 C3
3I06 B5
3I09 E4
3I10 B5
3I11 B6
3I12 B7
3I13 C6
3I14 C7
3I15 C6
3I16 C7
3I17 D6
3I18 D7
3I19 D6
3I20 D6
3I21 F6
3I22 F6
3I23 E5
3I24 E5
3I25 E6
3I26 H7
3I27 F7
3IK4 D3
3IK5 F3
3IK7 I4
3IK8 E7
3IQ2 F8
3IQ3 G7
5I01 I10
7I06 F7
7I24 C5
7I60 G7
9I00 B5
9I01 B5
9I02 F5
9I03 F5
9I15 F4
9I20 F7
9I21 G7
9I78 B5
9I95 B3
9I96 B3
IIO0 C4
IIO1 B4
IIO2 E4
IIO3 D4
IIO4 D4
IIO5 E4
IIO6 E5
IIO7 C7
IIO8 B6
IIO9 C7
IIO10 D7
IIO11 D6
IIO12 F6
IIE0 B3
IIE1 B5
IIE4 E7
IIE5 B7
IIE8 I10
IIG6 F7
IIG7 I4
IIG8 G7

Small Signal Board: I/O2: Connections

1I01-1 E11	1I10-B A11	1I42 B13	1I73 C3	2I21 D9	2I47 H4	3I28 H7	3I56 B4	3I74 C12	3I90 F9	3IA6 B2	3IC9 D2	3IT0 F8	6I26 D4	6I41 B14	6I55 G9	6I76 C15	7I09 G6	9I10 H14	9I86 B13	9IB3 A10	9IZZ G4	FI35 D3	FI53 A4	FI93 G7	II36 C9	II49 F5	IIF5 F1
1I01-2 C3	1I10-C C6	1I44 B14	1I75 B12	2I22 C9	2I51 A14	3I32 F3	3I57 B3	3I76 B15	3I91 F8	3IA7 C2	3ID0 H6	3IT1 G8	6I27 B4	6I43 A4	6I56 G9	6I77 C14	7I21-1 E2	9I11 F13	9I92 F15	9ID1 A7	FI10 H15	FI36 B3	FI55 B14	FI94 H14	II37 B9	IIA0 C4	IIF6 E1
1I01-3 B3	1I10-D D6	1I46 C10	1I76 B12	2I23 B9	2I63 A4	3I33 F3	3I58 C4	3I77 B13	3I92 F9	3IA8 D2	3ID1 E3	3IT4 H8	6I28 C4	6I44 A14	6I61 G9	6IA7 G3	7I21-2 E1	9I12 H14	9I93 F13	9ID2 A7	FI11 H14	FI38 C3	FI58 C10	FI96 E14	II38 F8	IIA1 D9	
1I02 E6	1I11 D15	1I47 B10	1I77 A6	2I24 C9	2IA4 G2	3I34 H2	3I59 C4	3I78 A5	3I98 H4	3IB2 D9	3ID7 G3	3IW4 G5	6I30 E10	6I45 B10	6I62 H9	7I01-A A1	7I44-A H3	9I17 A6	9I94 E15	9ID3 A8	FI12 G14	FI40 H5	FI59 B10	FI97 F14	II41 E1	IIA2 E9	
1I04-1 B11	1I17 F5	1I48 F10	1I78 D6	2I26 F9	2IC0 F8	3I36 H2	3I61 D9	3I79 B9	3I99 G8	3IB4 F6	3ID8 H3	3IW5 H5	6I31 E10	6I46 B10	6I69 H9	7I01-B B1	7I44-B G3	9I22 H13	9I97 G13	9ID4 A8	FI13 G14	FI41 D10	FI60 F10	FI98 G14	II42 G8	IIA5 F8	
1I04-2 C11	1I18 F3	1I49 G10	1I97 A4	2I27 G9	2IC1 F8	3I37 E1	3I62 E9	3I80 C9	3IA0 G9	3IB5 F6	3IH1 G5	6I08 F3	6I32 E10	6I47 C10	6I70 H9	7I02-A B1	7I49 G5	9I50 F2	9IA4 D1	9ID5 A9	FI14 G13	FI42 E10	FI61 G10	FI99 F15	II43 H8	IIA9 G2	
1I04-3 B13	1I37 E10	1I54 H10	2I11 F1	2I30 H9	2IC6 F4	3I38 H2	3I69 C9	3I83 B15	3IA1 H4	3IC1 H6	3IK2 B9	6I09 E5	6I33 E10	6I48 C10	6I71 B4	7I02-B C1	7I50-1 H1	9I51 E1	9IA5 D1	9ID6 A9	FI16 E13	FI46 C9	FI64 G10	FIA9 D14	II44 G1	IIB0 G2	
1I06-1 H11	1I38 E10	1I58 H9	2I12 H2	2I32 G8	2IC7 F4	3I40 E4	3I70 C9	3I84 B14	3IA2 H8	3IC2 G4	3IK3 C9	6I10 E3	6I37 C9	6I50 B14	6I72 C4	7I04 D1	7I50-2 H2	9I60 H13	9IA6 F5	9ID7 A10	FI17 B12	FI47 D10	FI68 H9	FIC1 F13	II45 G3	IIF1 H2	
1I06-2 F11	1I39 C10	1I70 C13	2I15 E3	2I36 H8	2IC9 A5	3I41 F4	3I71 D8	3I87 C14	3IA3 H8	3IC3 G4	3IN5 E9	6I11 E1	6I38 C9	6I52 C13	6I73 D4	7I05-1 F1	9I04 H12	9I69 A6	9IA7 F6	9ID8 A10	FI18 F13	FI49 C12	FI69 D14	II27 B4	II46 F6	IIF2 G2	
1I09 C10	1I40 D10	1I71 D3	2I18 E9	2I39 F1	2IH3 G4	3I54 D4	3I72 D9	3I88 C13	3IA4 A2	3IC4 E9	3IN6 E9	6I12 G2	6I39 D9	6I53 F9	6I74 A15	7I05-2 G1	9I08 G13	9I70 A6	9IB1 F11	9ID9 A10	FI19 F13	FI50 D14	FI83 F3	II32 C9	II47 G6	IIF3 H3	
1I10-A B6	1I41 C12	1I72 B3	2I19 E9	2I46 F6	3I07 G2	3I55 D4	3I73 C15	3I89 F8	3IA5 B2	3IC6 B8	3IS2 C8	6I13 H2	6I40 D9	6I54 F9	6I75 B15	7I07 H6	9I09 F13	9I82 E3	9IB2 F11	9IZY G4	FI21 F11	FI52 B12	FI84 E4	II33 D9	II48 H6	IIF4 G4	



Small Signal Board: I/O3: Switch

B 14 C I/O 3 SWITCH

B 14 C

RESERVED

RESERVED

HDMI IN

2FH

* References to B16 only for HDI-sets

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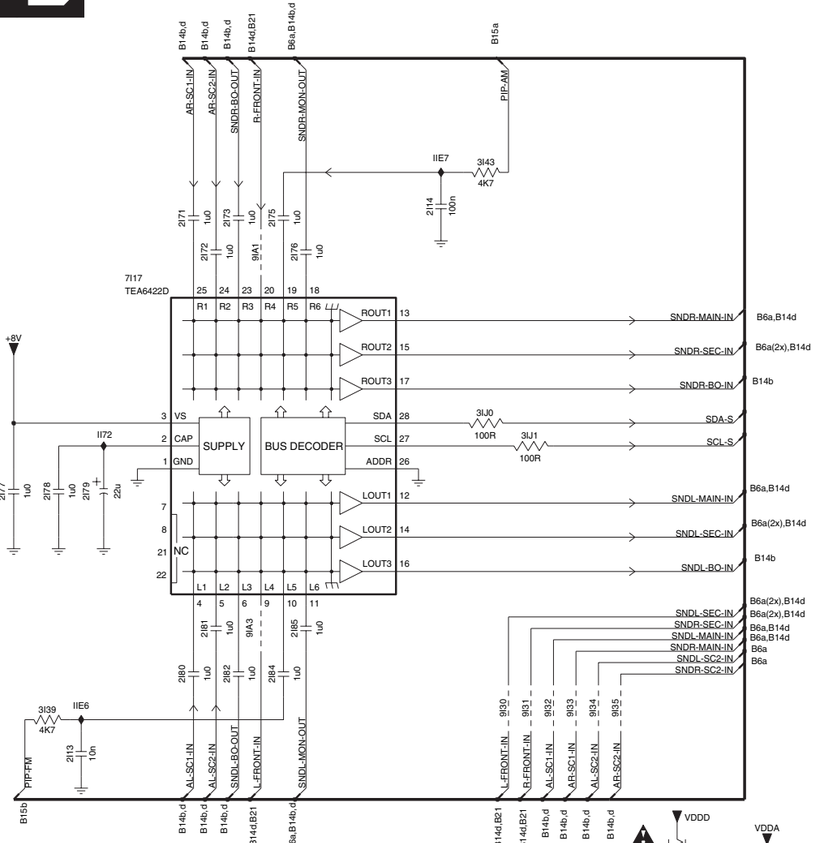
1I07 I2
1I68 I2
1I69 I3
2I35 C2
2I41 B2
2I43 E2
2I44 A2
2I45 A11
2I49 D8
2I57 G3
2I58 G3
2IA9 F9
2IDA F13
2IDB F13
2IDC G13
2IDD G13
2IR0 H7
2IR1 I11
2IS0 A5
2IS1 A5
2IS2 B5
2IS3 C5
2IS4 C5
2IS5 D5
2ISA A9
3IC8 A3
3ID5 B2
3ID9 C3
3IDA E13
3IDB G13
3IE2 G3
3IE3 G2
3IE4 B3
3IE5 C2
3IE6 D2
3IE7 C2
3IE8 D3
3IE9 G3
3IF5 G3
3IF6 H3
3IF7 H2
3IFA F5
3IFB F5
3IFC G5
3IFD H10
3IFE I6
3IFF G9
3IFH I7
3IFL I5
3IG2 B9
3IG5 C8
3IG8 B9
3IH5 E3
3IH6 E3
3IH7 E3
3IJ9 A9
3IL1 A11
3IL2 A11
3IL5 B11
3IL6 A11
3IL8 B11
3IL9 B11
3IM2 C11
3IM3 C11
3IM4 D11
3IM6 D11
3IM7 E11
3IM8 E11
3IMA A7
3IMB A7
3IMC A7
3IMD A6
3IME B6
3IMF B7
3IMG B6
3IMH B6
3IML B6
3IMM C6
3IMN C6
3IMP C6
3IMR D6
3IMS D7
3IMT D6
3IMV D6
3IMW D6
3IN4 F9
3IN7 E2
3IN8 E2
3IN9 E2
3INK B7
3IO5 D14
3IO6 D13
3IY1 A3
3IY2 A2
3IY3 D3
3IY4 D3
3IY5 B2
3IY6 B3
3IY7 B3
5I07 F13
5I20 E13
6I90 H2
6I91 H3
6I92 H3
6I93 H4
6I94 I6
7I26-1 A11
7I26-2 A12
7I27-1 B3
7I27-2 A3
7I28-1 C11
7I28-2 C11
7I29-1 C3
7I29-2 C3
7I30-1 E11
7I30-2 D11
7I31-1 E3
7I31-2 E3
7I33 D8
7I48-1 B9
7I48-2 C9
7I80 G6
7I81 I11
7I82-1 I6
7I82-2 I6
7I90 A7
7I91 A6
7I92 B7
7I93 C6
7I94 C7
7I95 D6
9I25 D8
9I26 D8
9I27 E8
9I37 A8
9I40 C3
9I54 A3
9I59 B8
9I61 A8
9I73 D13
9I74 D13
9I75 D13
9I83 D3
9I87 E5
9I89 F5
9I90 G5
9IB5 E13
9IB6 F13
9IC1 D10
9IC2 B10
9IC3 A10
9IF0 E6
9IF1 H6
9IF2 H6
9IF3 I10
FIB0 I2
FIB1 I3
II17 A3
II18 B2
II19 C3
II20 C2
II21 E3
II22 E2
II50 H2
II51 H3
II57 E11
II58 D11
II59 C11
II60 C11
II90 A11
II91 A11
IIB1 F9
IIB2 H3
IIB3 H3
IIC3 G5
IIH5 E5
IIH6 F5

Small Signal Board: I/O 4: Audio

B14 D I/O 4 AUDIO

B14 D



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2I73 B3
2I75 B3
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2I77 C1
2I78 C2
2I79 C2
2I80 E2
2I81 D3
2I82 E3
2I84 E3
2I85 D3
2IA0 B10
2IA1 D10
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2IQ6 G5
2IQ7 H7
2IQ8 H7
2IQ9 F6
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2IR4 F6
2IR5 F6
2IR6 F6
2IR7 F7
2IR8 F7
2IR9 F8
3I39 E2
3I43 A4
3IE1 F6
3IH8 C10
3II0 C10
3II1 C10
3II2 D10
3II3 D10
3II5 G10
3II6 H11
3II7 H11
3IJ0 C4
3IJ1 C5
3IJ2 F10
3IJ3 F11
3IJ4 F11
5I54 F8
5I55 F8
7I17 B2
7I20 B12
7I22 C10
7I23-1 F10
7I23-2 H10
7I25 F5
9I30 E5
9I31 E5
9I32 E5
9I33 E5
9I34 E5
9I35 E5
9I57 E12
9I58 E12
9I68 F11
9IA1 B3
9IA3 D3
9IB7 G11
II67 C10
II72 C2
IIE2 B10
IIE3 D10
IIE6 E2
IIE7 A4

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Small Signal Board: I/O5

1I43 G1, 1I45 G2, 1I79 H5, 1I99 H1, 1M15 F2, 2I00 H3, 2I10 A5, 2I33 C9, 2I34 D10, 2I37 B10, 2I38 G3, 2I40 C10, 2I48 E3, 2I52 C5, 2I53 A1, 2I59 E11, 2I60 E2, 2I62 G9, 2I65 G2, 2IB7 D4, 2IJ5 D6, 2IJ6 H9, 2IJ7 I9, 2IK5 G4, 2IK6 G5, 2IK7 G6, 2IS6 H5, 3I00 G8, 3IB1 E10, 3IB3 E11, 3IB6 D8, 3IB7 D9, 3IB8 G9, 3IB9 G9, 3IBA E9, 3IBB E9, 3IBC B2, 3IBD B2, 3IC0 C9, 3IC5 C9, 3IC7 C10, 3ID2 C4, 3ID3 A12, 3ID4 B12, 3ID6 D6, 3IE0 A10, 3IF1 D1, 3IF2 D2, 3IF3 D2, 3IF4 D3, 3IF8 D4, 3IF9 E3, 3IGA A12, 3IGB B12, 3IGC B11, 3IGD B10, 3IGE C11, 3IGF C10, 3IGH H8, 3IH0 A12, 3IH2 B10, 3IH4 B11, 3IS3 H9, 3IS6 I9, 3IS8 F2, 3IS9 F2, 3IW3 B4, 3IW9 B4, 5I02 E9, 5I03 A1, 5I04 D10, 5I10 D5, 5I22 H3, 5I45 G5, 5I46 G5, 6I03 E12, 6I04 F12, 6I05 D5, 7I08 B5, 7I10 E10, 7I11 G8, 7I13 E5, 7I14 B11, 7I15 E4, 7I16-1 E3, 7I16-2 E1, 7I40 C11, 7I45 C8, 7I46 C9, 7I75 B2, 9I05 F10, 9I06 G10, 9I24 C2, 9I46 C2, 9I99 B12, 9ID0 G8, FI43 H3, FIC4 F2, FIC5 F2, II34 G8, II35 G8, II40 B12, II75 D4, II76 E3, II77 C4, II78 E2, II79 A11, II80 E1, II81 B11, II82 B11, II83 E4, II84 E2, II85 D10, II86 C5, II87 C5, II89 F11, II95 E11, II96 D9

B14 E I/O 5

B14 E

TEMPERATURE SENSOR

+3V3_SIM, 5I03, 2I53 100n, 7I75 PCA9515DP, VCC, SDA1, SDA0, SCL1, SCL0, NC, EN, GND, SDA-VCHIP, SCL-VCHIP, B15, 3IBC 100R, 3IBD 100R, SDA-S, SCL-S, 3IW9 100R, 3IW3 100R, 7I08 LM75ADP, VS, OS, SDA, SCL, GND, A0, A1, A2, +5V, 2I10 100n, 9I46 RES, 9I24 RES

SERVICE CONNECTOR

FIC4, 3IS9 100R, SDA-S, 1M15, FIC5, 3IS8 100R, SCL-S, S3B-EH, 1I43, 1I45, 2I65 100p, 2I38 100p

+8V, 3ID2 1R0, II77, 5I10 1m0, II86, 2I52 RES 220p, II87, BAS316 6I05, 3ID6 2K2, +33V, 2IB7 100n, 2IJ5 100n

+5V, 3IF1 470R, 3IF2 2K7, 3IF3 10K, 3IF4 470R, 3IF8 2K2, II75, 7I13 BC817-25, II80, 2I60 1n0, II78, II84, 2I48 1n0, II76, 3IF9 3K3, II83, 7I15 BC847BW, 7I16-2 BC847BS, 7I16-1 BC847BS

+11V_S, 5I22, FI43, +11V_SF, 2I00 100p

+5V_CON, 5I46, 2IK5 100n, +5V_VDP, 5I45, 2IK6 100n, +5V, +5V, +8V_VDP, 5I47, 2IK7 100n, +8V

+11V, 1I79 T 3000mA, +11V_DC, 2IS6 100u 16V

1I99 EMC HOLE

STANDBY, 3IE0 47K, II82, 3IGC 10K, 7I14 BC847BW, 2I37 1U, 3IGD 47K, +5V, +5V2-STBY, +3V3_SIM, 3IH0 4K7, 3ID3 4K7, 3IB0 4K7, II79, PDP-GO

STANDBY, 3IH2 47K, II81, 3IGE 10K, 7I40 BC847BW, 2I40 1U, 3IGF 47K, 3IH4 2K2, 9I99, 3ID4 4K7, 3IGB 4K7, II40, CPU-GO, (CPUGO)

+5V2-STBY, 3IC0 1K0, 3IC5 220R, 3IC7 220R, 7I45 TS2431, 7I46 BC847B, 2I33 1n0, 3IB7 330R, 3IB6 1K0, 2I34 10u 16V, 5I04

+3V3_SIM, II96, 5I02, II85, 3IB1 10K, 3IB3 10K, 2I59 100n, 6I03 BAV99 COL, 7I10 PCA9515DP, VCC, SDA0, SDA1, SCL0, SCL1, EN, GND, NC, SDA-S, 3IBA 100R, SCL-S, 3IBB 100R, II95, SCL-DISP, 6I04 BAV99 COL, II89, SDA-DISP, 9I05, 9I06

+5V2-STBY, 9ID0, 3IB8 10K, 7I11 BC847BW, II35, 3IB9 100R, LED1, ON-OFF-LED, 3I00 10K, II34, 3IG1 100K, 2IB2 100p

SURR-R, 3IS3 100R, 2IJ6 100p, SURR-RF

SURR-L, 3IS6 100R, 2IJ7 100p, SURR-LF

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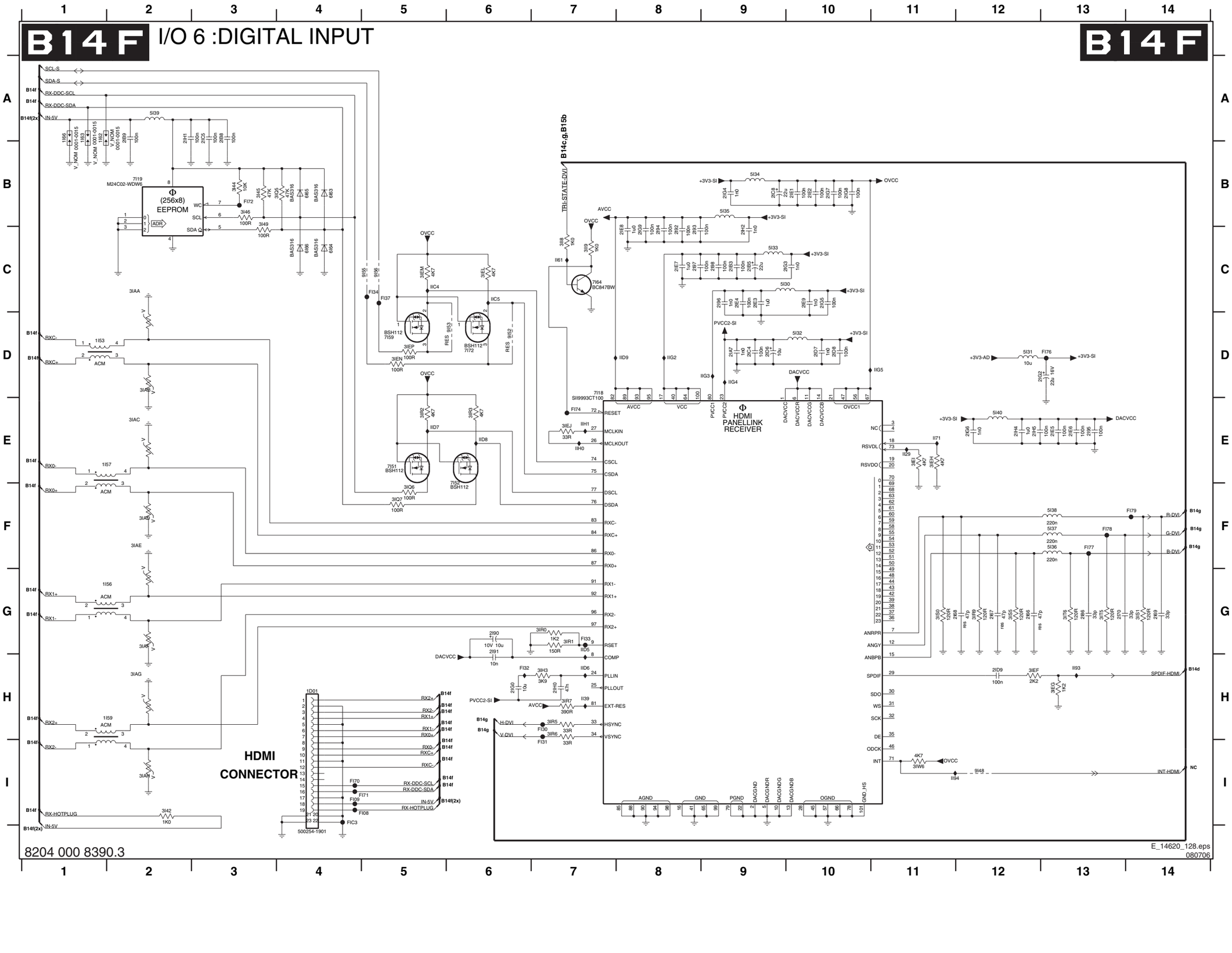
Small Signal Board: I/O 6: Digital Input



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1I57 E1	7I59 D5
1I59 H1	7I64 C7
1I62 A1	7I72 D6
1I63 A1	9I48 I12
1I66 A1	9I52 D6
2I66 G12	9I53 D6
2I67 G12	9I55 C5
2I68 G12	9I56 C5
2I69 G14	FI08 I5
2I70 G13	FI09 I4
2I86 G13	FI30 H7
2I90 G6	FI31 I7
2I91 G6	FI32 H6
2I92 C8	FI33 G7
2I93 C8	FI34 C5
2I94 C8	FI37 C5
2I95 E13	FI70 I4
2I96 C9	FI71 I5
2I97 C8	FI72 B3
2I98 C9	FI74 E7
2IA7 D9	FI76 D13
2IB3 C9	FI77 F13
2IB5 C9	FI78 F13
2IB8 A3	FI79 F14
2IB9 A2	FIC3 I4
2IC4 D9	II29 E11
2IC5 A3	II39 H7
2IC8 B9	II61 C7
2ID6 D9	II71 E11
2ID7 D10	II93 H13
2ID8 D10	II94 I11
2ID9 H12	IIC4 C5
2IE1 B10	IIC5 C6
2IE2 B10	IID5 G7
2IE3 C9	IID6 H7
2IE4 C9	IID7 E5
2IE5 E13	IID8 E6
2IE6 E13	IID9 D8
2IE7 C8	IIG2 D8
2IE8 C8	IIG3 D9
2IE9 C10	IIG4 D9
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2IG8 B10	
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2IH5 E12	
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3I46 B3	
3I49 B3	
3IAA C2	
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3IAF G2	
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3IAH I2	
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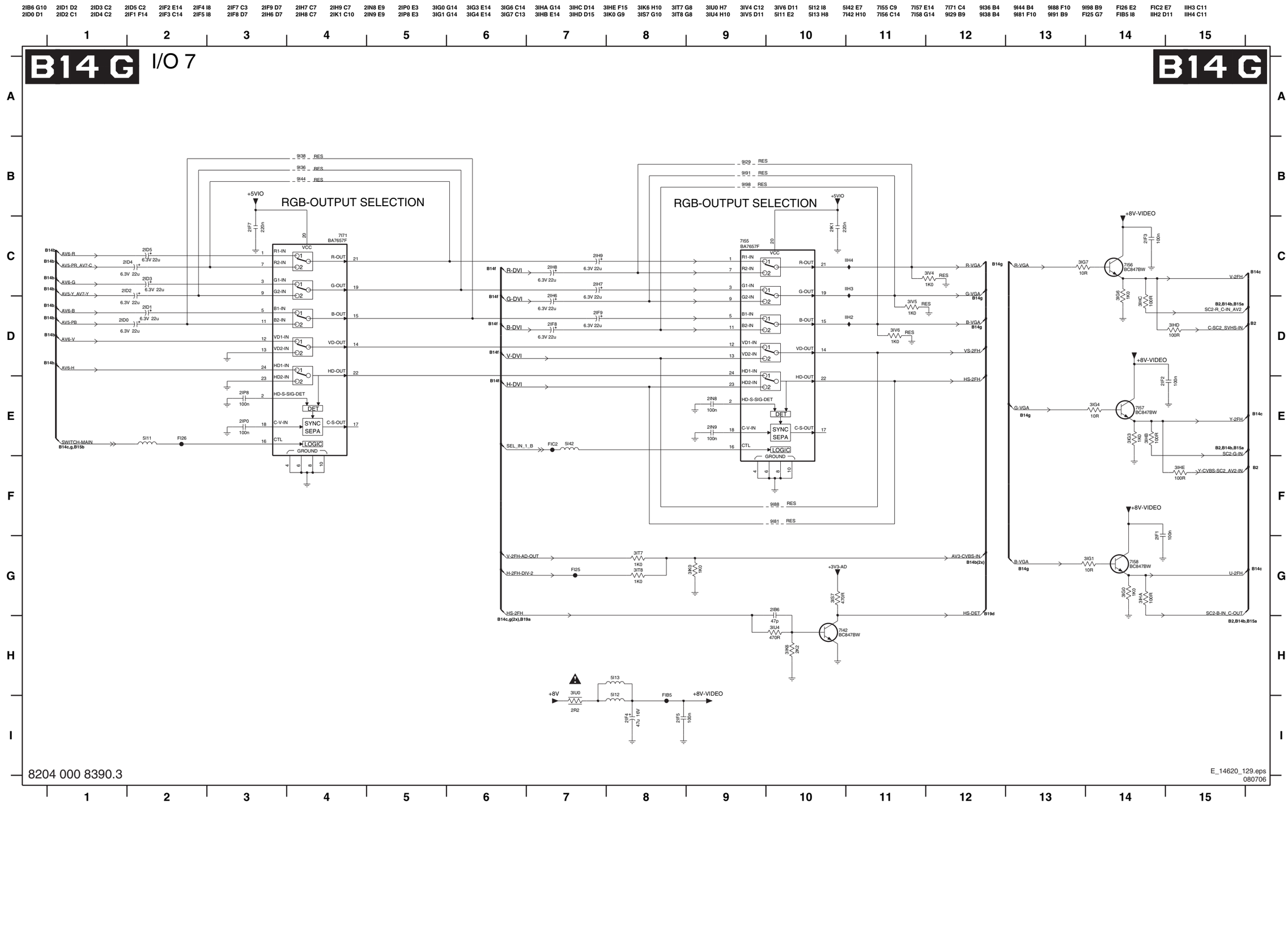
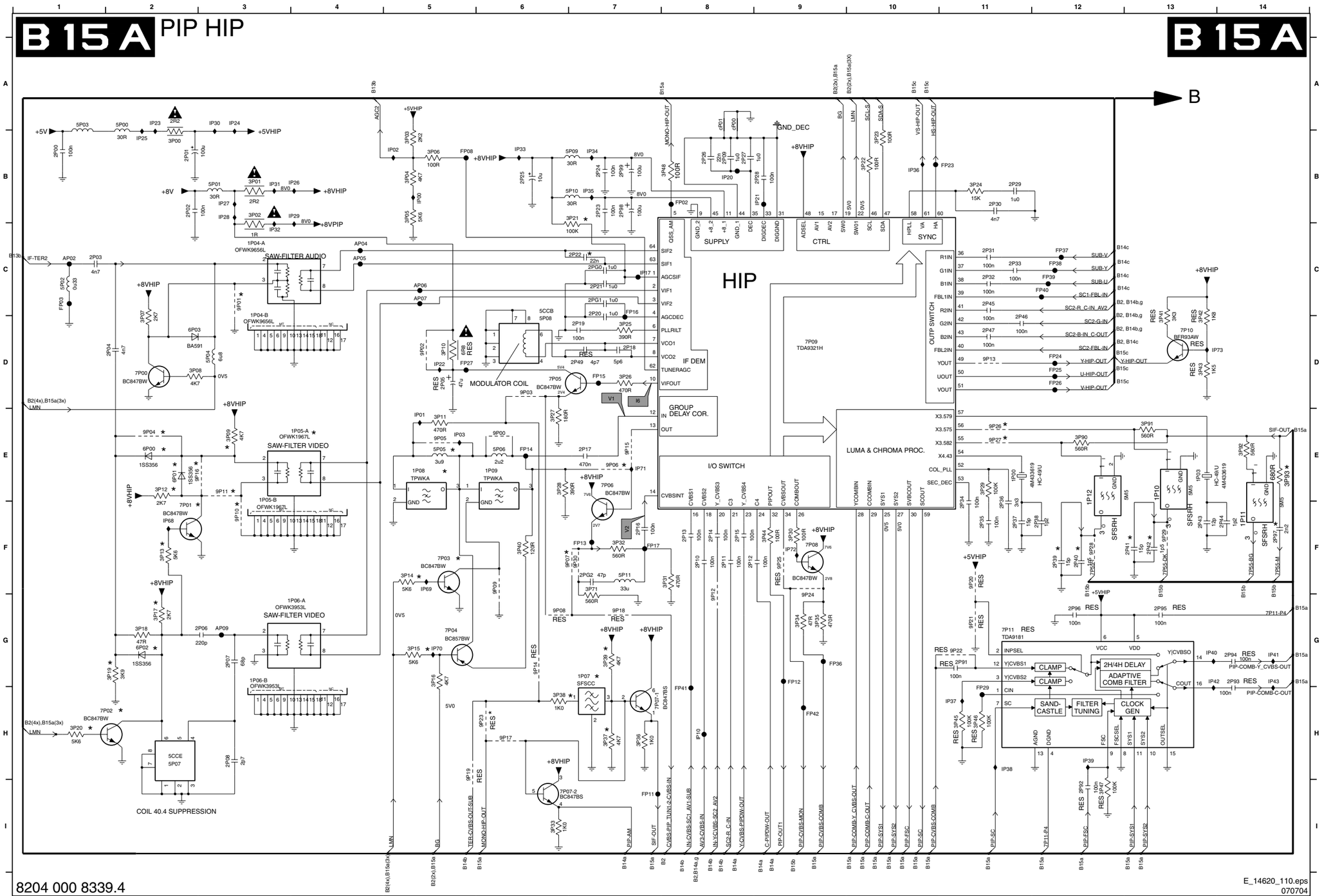
3IEG H13	
3IEH E11	
3IEI E11	
3IEJ E7	
3IEL C6	
3IEM C5	
3IEN D5	
3IEP D5	
3IH3 H7	
3II8 C7	
3II9 C7	
3IQ5 B4	
3IQ6 F5	
3IQ7 F5	
3IR0 G7	
3IR1 G7	
3IR2 E5	
3IR3 E6	
3IR5 H7	
3IR6 H7	
3IR7 H7	
3IR9 G12	
3IS0 G11	
3IS1 G14	
3IS5 G12	
3IT5 G13	
3IT6 G13	
3IW6 I11	
5I30 C9	
5I31 D12	
5I32 D10	
5I33 C9	
5I34 B9	
5I35 B9	
5I36 F13	
5I37 F13	
5I38 F13	
5I39 A2	
5I40 E12	
6I63 B4	
6I64 C4	
6I65 B4	
6I66 C4	
7I18 D7	

Small Signal Board: I/O7



Small Signal Board: PIP HIP



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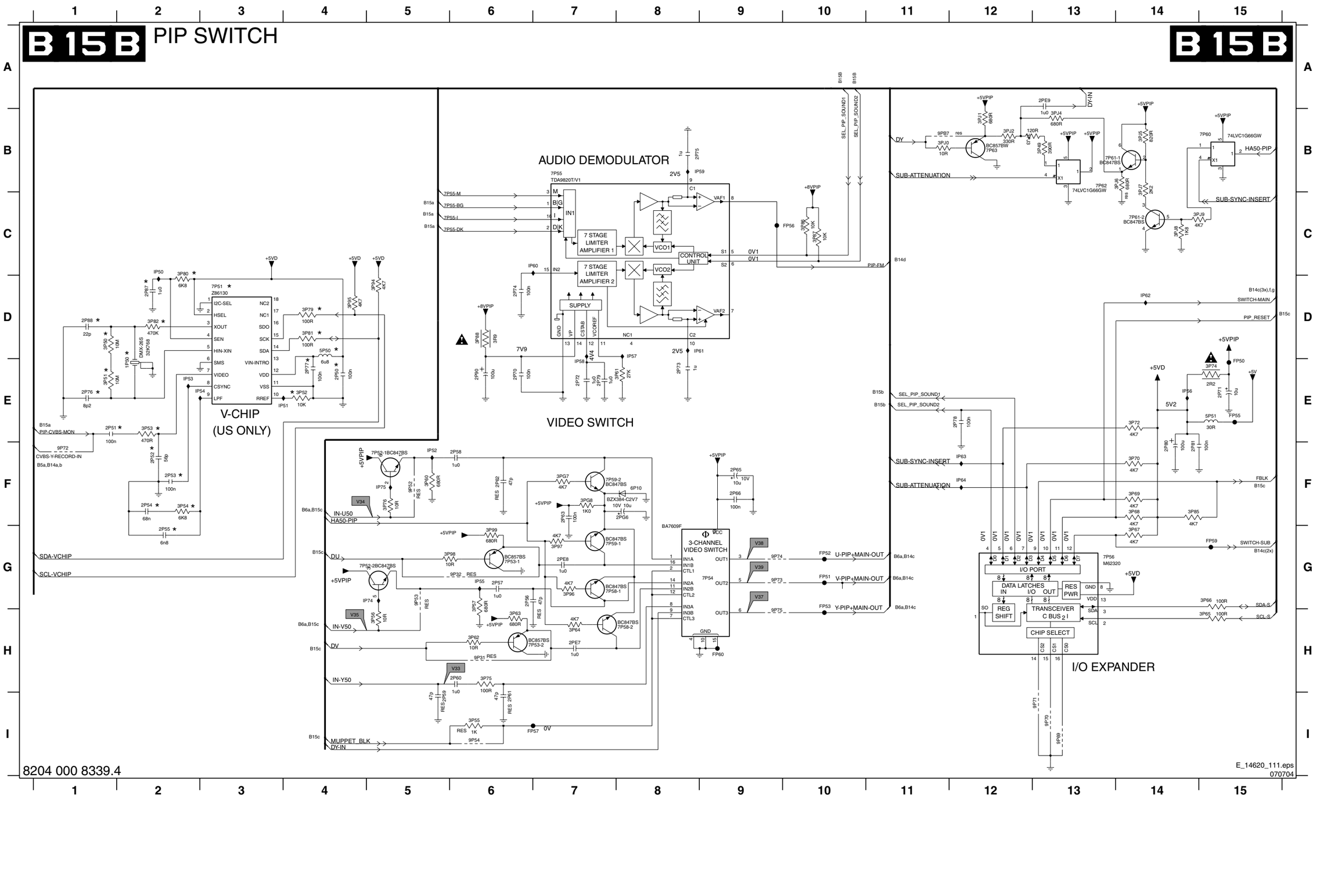
1P03 E13	3P15 G5	9P21 G11
1P04-A C3	3P16 G5	9P22 G11
1P04-B D3	3P17 G2	9P23 H6
1P05-A E4	3P18 G2	9P24 G9
1P05-B F3	3P19 G2	9P25 F9
1P06-A G4	3P20 H1	9P26 E11
1P06-B G3	3P21 B7	9P27 E11
1P07 G7	3P22 B10	9P28 F12
1P08 E5	3P23 B10	9P29 F13
1P09 E6	3P24 B11	9P30 F7
1P10 E13	3P25 D7	AP02 C1
1P11 F14	3P26 D7	AP04 C4
1P12 E12	3P27 E6	AP05 C4
2P00 B1	3P28 E6	AP06 C5
2P01 B2	3P29 E11	AP07 C5
2P02 B2	3P30 F9	AP09 G3
2P03 C1	3P31 F8	FP02 B8
2P04 D2	3P32 F7	FP03 C1
2P05 D5	3P33 I6	FP08 B5
2P06 G3	3P34 G9	FP11 I7
2P07 G3	3P35 G9	FP12 G9
2P08 H3	3P36 H7	FP13 F7
2P09 B8	3P37 H7	FP14 E6
2P10 F8	3P38 H6	FP15 D7
2P11 F8	3P39 G7	FP16 C7
2P12 F8	3P40 F6	FP17 F7
2P13 F8	3P41 D13	FP23 B11
2P14 F8	3P42 D13	FP24 D12
2P15 F8	3P43 D13	FP25 D12
2P16 F7	3P44 F9	FP26 D12
2P17 E7	3P45 H11	FP27 D5
2P18 D7	3P46 H11	FP29 H11
2P19 D7	3P47 I12	FP36 G9
2P20 C7	3P48 B8	FP37 C12
2P21 C7	3P71 F7	FP38 C12
2P22 C7	3P90 E12	FP39 C12
2P23 B7	3P91 E13	FP40 C12
2P24 B7	3P92 E14	FP41 H8
2P25 B6	3P93 E14	FP42 H9
2P26 B8	5P00 A2	IP00 B5
2P27 B8	5P01 B3	IP01 E5
2P28 B9	5P02 C1	IP02 B5
2P29 B11	5P03 A1	IP03 E5
2P30 B11	5P04 D3	IP10 H8
2P31 C11	5P05 E5	IP17 C7
2P32 C11	5P06 E6	IP20 B8
2P33 C11	5P07 H2	IP21 B9
2P34 F11	5P08 D6	IP22 D5
2P35 F11	5P09 B7	IP23 A2
2P36 F11	5P10 B7	IP24 A3
2P37 F11	5P11 F7	IP25 B2
2P38 F12	6P00 E2	IP26 B4
2P39 F12	6P01 E2	IP27 B3
2P40 F12	6P02 G2	IP28 B3
2P41 F13	6P03 D2	IP29 B4
2P42 F13	7P00 D2	IP30 A3
2P43 F13	7P01 F2	IP31 B3
2P44 F14	7P02 H1	IP32 C3
2P45 C11	7P03 F5	IP33 B6
2P46 D11	7P04 G5	IP34 B7
2P47 D11	7P05 D6	IP35 B7
2P49 D7	7P06 E7	IP36 B10
2P91 G11	7P07-1 H7	IP37 H11
2P92 I12	7P07-2 I6	IP38 H11
2P93 G14	7P08 F9	IP39 H12
2P94 G14	7P09 D9	IP40 G13
2P95 G13	7P10 D13	IP41 G14
2P96 G12	7P11 G11	IP42 G13
2P97 F14	9P00 E6	IP43 G14
2P98 B7	9P01 C3	IP68 F2
2P99 B7	9P02 D5	IP69 F5
2PG0 C7	9P03 D6	IP70 G5
2PG1 C7	9P04 E2	IP71 E7
2PG2 F7	9P05 E5	IP72 F9
3P00 B2	9P06 E7	IP73 D14
3P01 B3	9P07 F7	cP00 A8
3P02 B3	9P08 G6	cP01 A8
3P03 B5	9P09 F6	
3P04 B5	9P10 F3	
3P05 B5	9P11 E3	
3P06 B5	9P12 G8	
3P07 D2	9P13 D11	
3P08 D2	9P14 G6	
3P09 E3	9P15 E7	
3P10 D5	9P16 E3	
3P11 E5	9P17 H6	
3P12 E2	9P18 G7	
3P13 F2	9P19 H5	

Small Signal Board: PIP Switch

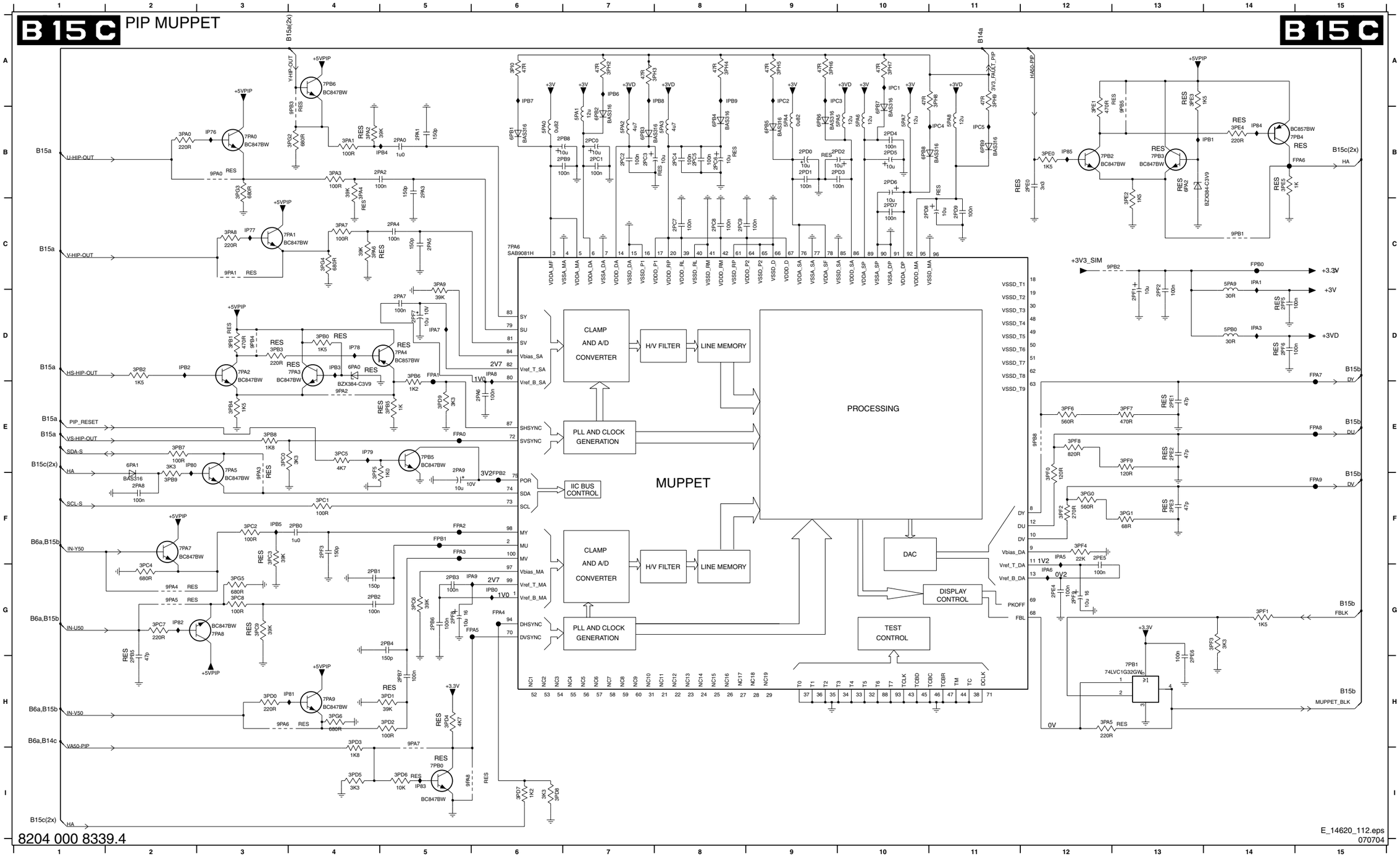
1P50 E2	2P54 F2	2P59 I5	2P65 F9	2P73 E8	2P78 E12	2P88 D1	2PG6 F8	3P53 E2	3P60 F5	3P65 H15	3P70 F14	3P79 D4	3P86 C10	3P96 G7	3PG8 F7	3PJ4 B13	3PJ9 C15	7P52 G4	7P55 B7	7P59-2 G7	7P63 B12	9P54 I6	9P73 G9	FP51 G10	FP57 I7	IP52 F5	IP57 D8	IP62 D14
2P50 E4	2P55 G2	2P60 H6	2P66 F9	2P74 D6	2P79 E7	2P90 E6	3P49 B13	3P54 F2	3P61 E8	3P66 G15	3P72 E14	3P80 C2	3P87 C10	3P97 G7	3PJ0 B11	3PJ5 B14	5P50 D4	7P52-1 F5	7P56 G13	7P60 B15	9P31 H6	9P69 I13	9P74 G9	FP52 G10	FP59 G15	IP53 E2	IP58 E7	IP63 F12
2P51 E1	2P56 G6	2P61 I6	2P70 E6	2P75 B8	2P80 F14	2P87 H7	3P50 D1	3P55 I6	3P62 H6	3P67 G14	3P74 E15	3P81 D4	3P88 D6	3P98 G6	3PJ1 B12	3PJ6 B14	5P51 E15	7P53-1 G6	7P58-1 G7	7P61-1 B14	9P32 G6	9P70 I13	9P75 H9	FP53 G10	FP60 H9	IP54 E3	IP59 B9	IP64 F12
2P52 F2	2P57 G6	2P62 F6	2P71 E15	2P76 E1	2P81 F14	2P88 G7	3P51 E1	3P56 H5	3P63 H6	3P68 F14	3P75 H6	3P82 D2	3P94 D5	3P99 G6	3PJ2 B12	3PJ7 B14	6P10 F8	7P53-2 H6	7P58-2 H8	7P61-2 C14	9P52 F5	9P71 I13	9PB7 B11	FP55 E15	IP50 C2	IP55 G6	IP60 C7	IP74 G5
2P53 F2	2P58 F6	2P63 F7	2P72 E7	2P77 E4	2P87 D2	2PE9 A13	3P52 E4	3P57 G6	3P64 H7	3P69 F14	3P76 F5	3P85 F14	3P95 D4	3PG7 F7	3PJ3 B12	3PJ8 C14	7P51 D3	7P54 G9	7P59-1 F7	7P62 B13	9P53 G5	9P72 F1	FP50 E15	FP56 C10	IP51 E4	IP56 E14	IP61 D8	IP75 F5



Small Signal Board: PIP Muppet

B 15 C PIP MUPPET

B 15 C



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Small Signal Board: HDI A/D Converter

B 19A HDI A/D CONVERTER

B 19A

+3V3-AD

7L02 LD1117DT33C

FL17 +5V

IN OUT COM

FE02

5L16 5L13 5L17 5L14 5L18 5L15

IL10 VD

IL11 VDD

IL12 PVD

2L19 1µ 2L33 100n 2L34 100n 2L58 1µ 22µ 6.3V 2L01 100n 2L02 100n 2L03 100n 2L04 100n 2L05 100n 2L06 100n 2L07 100n 2L10 100n

2L00 1µ 22µ 6.3V 2L12 100n 2L13 100n 2L14 100n 2L15 100n 2L16 100n 2L17 100n

2L51 1µ 22µ 6.3V 2L08 100n 2L09 100n 2L20 100n 2L21 100n

A/D CONVERTER

7L01 AD9883AKST

VDD 11 22 23 69 78 79

PVD 26 27 39 42 45 46 51 52 59 62 VD 34 35

B14g V-2FH AL06 3L04 100R 5L02 470n FL09 3L29 150R 2L52 47n 54 RAIN

2L48 RES 4p7 2L28 22p 3L19 680R

B14g(2x)B19a Y-2FH AL07 3L05 100R 5L04 470n FL10 3L30 150R 2L57 47n 48 GAIN

RES 2L49 4p7 2L29 22p 3L20 680R RES 3L27 470R RES 2L118 47p RES 2L59 1n0

B14g U-2FH AL08 3L11 100R 5L06 470n FL12 3L31 150R 2L54 47n 43 BAIN

2L50 RES 4p7 2L30 22p 3L21 680R

2L11 100n IL06 37 MIDSCV

CLAMP A/D 8

ROUTA0 77 ROUTA1 76 ROUTA2 75 ROUTA3 74 ROUTA4 73 ROUTA5 72 ROUTA6 71 ROUTA7 70 → UV-AD-0 … UV-AD-7

GOUTA0 9 GOUTA1 8 GOUTA2 7 GOUTA3 6 GOUTA4 5 GOUTA5 4 GOUTA6 3 GOUTA7 2 → Y-AD-0 … Y-AD-7

BOUTA0 19 BOUTA1 18 BOUTA2 17 BOUTA3 16 BOUTA4 15 BOUTA5 14 BOUTA6 13 BOUTA7 12 → U-AD-0 … U-AD-7

to EPLD → B19d

B14c,g HS-2FH FL11 3L32 470R 30 HSYNC

B14c(2x) VS-2FH FL13 3L33 470R 31 VSYNC

B14g(2x),B19a Y-2FH 3L12 470R 2L56 1n0 49 SOGIN

2L60 47p 470R 3L28 38 CLAMP

COAST 29 COAST

33 FILT

SYNC PROCESSING AND CLOCK GENERATION

HSOUT 66 FL15 → H-2FH-AD-OUT B19d

VSOUT 64 FL03 → V-2FH-AD-OUT B14g,B19d

SOGOUT 65 FL04 → SYNCDET B19d

DATACK 67 AL02 → CLK-2FH B19b

PVD

2L31 47n IL07

2L26 33n 3L08 2K7 IL08

2L27 4n7

2L32 3n3

SERIAL REGISTER AND PWR MANAGMENT

57 SDA 56 SCL 55 A0

3L06 100R 3L03 100R VD IL09

REF REF-BYPASS 58 FL05

2L25 100n

GND

1 10 20 21 24 25 28 32 36 40 41 44 47 50 53 60 61 63 68 80

SDA-F3 B19b,d

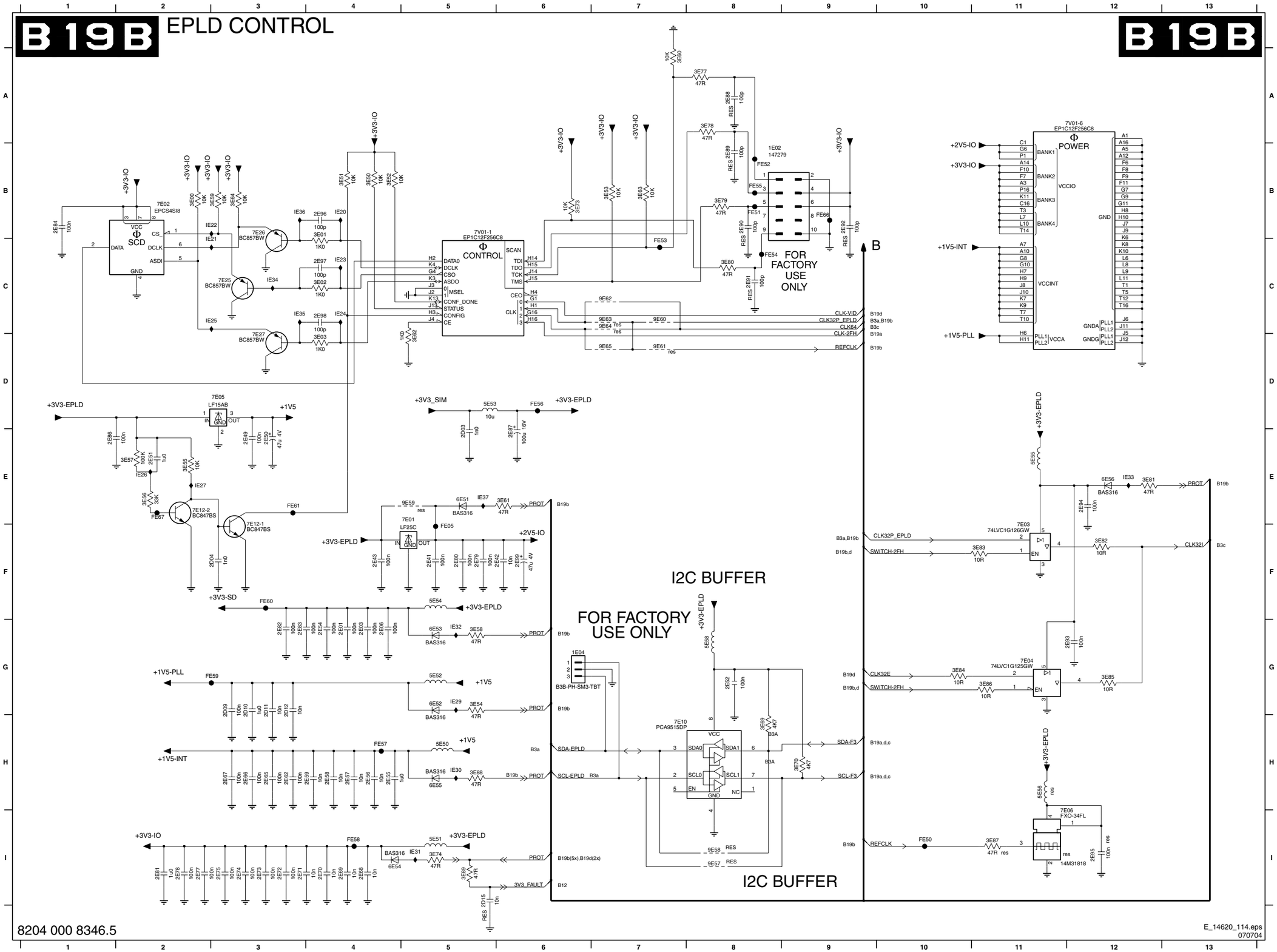
SCL-F3 B19b,d

8204 000 8346.5

E_14620_113.eps 070704

2L00 B3 IL11 B5
2L01 A4 IL12 C5
2L02 A4
2L03 A4
2L04 A4
2L05 A4
2L06 A5
2L07 A5
2L08 C4
2L09 C4
2L10 A5
2L11 F6
2L12 B4
2L13 B4
2L14 B4
2L15 B4
2L16 B4
2L17 B5
2L18 E5
2L19 A1
2L20 C4
2L21 C4
2L25 H10
2L26 H2
2L27 H2
2L28 D3
2L29 E3
2L30 F3
2L31 H2
2L32 H2
2L33 A2
2L34 A3
2L48 D2
2L49 E2
2L50 F2
2L51 C3
2L52 C6
2L54 F6
2L56 G4
2L57 E6
2L58 A3
2L59 E5
2L60 G4
3L02 E5
3L03 H5
3L04 C2
3L05 E2
3L06 H5
3L08 H3
3L11 F2
3L12 G3
3L19 D4
3L20 E4
3L21 F4
3L28 G6
3L29 C4
3L30 E4
3L31 F4
3L32 G4
3L33 G5
5L02 C2
5L04 E2
5L06 F2
5L13 A3
5L14 B3
5L15 C3
5L16 A3
5L17 B3
5L18 B3
7L01 C6
7L02 A2
AL02 G10
AL06 C1
AL07 E1
AL08 F1
FE02 A3
FL03 G10
FL04 G10
FL05 H10
FL09 C3
FL10 E3
FL11 G4
FL12 F3
FL13 G4
FL15 G10
FL17 A1
IL06 F6
IL07 H3
IL08 H3
IL09 H6
IL10 A5

Small Signal Board: EPLD Control



1E02	B8	3E86	G11
1E04	G6	3E87	I11
2D03	E5	3E88	H5
2D04	F3	3E89	I5
2D09	G3	5E50	H5
2D10	G3	5E51	I5
2D11	G3	5E52	G5
2D12	G3	5E53	D5
2D15	I5	5E54	F5
2E01	G4	5E55	E11
2E03	G4	5E56	H11
2E06	G4	5E58	G8
2E41	F5	6E51	E5
2E42	F6	6E52	G5
2E43	F4	6E53	G5
2E49	E3	6E54	I4
2E50	E3	6E55	H5
2E51	E2	6E56	E12
2E52	G8	7E01	E5
2E54	G4	7E02	B2
2E55	H4	7E03	F11
2E56	H4	7E04	G11
2E57	H4	7E05	D3
2E58	H4	7E06	I11
2E59	H4	7E10	H8
2E62	H3	7E12-1	F3
2E65	H3	7E12-2	E2
2E66	H3	7E25	C3
2E67	H3	7E26	B3
2E68	I4	7E27	C3
2E69	I4	7V01-1	B5
2E70	I4	7V01-6	A12
2E71	I3	9E57	I8
2E72	I3	9E58	I8
2E73	I3	9E59	E5
2E74	I3	9E60	C7
2E75	I3	9E61	D7
2E77	I2	9E62	C7
2E78	I2	9E63	C7
2E79	F5	9E64	C7
2E80	F5	9E65	D7
2E81	I2	FE05	F5
2E82	G3	FE50	I10
2E83	G3	FE51	B8
2E84	B1	FE52	B8
2E86	E1	FE53	C7
2E87	E6	FE54	C8
2E88	A8	FE55	B8
2E89	B8	FE56	D6
2E90	B8	FE57	H4
2E91	C8	FE58	I4
2E92	B9	FE59	G3
2E93	G12	FE60	F3
2E94	E12	FE61	E3
2E95	I12	FE66	B9
2E96	B4	FE67	E2
2E97	C4	IE20	B4
2E98	C4	IE21	C3
2E99	F6	IE22	B3
3E00	B2	IE23	C4
3E01	B4	IE24	C3
3E02	C4	IE25	E2
3E03	D4	IE26	E2
3E50	B4	IE27	E2
3E51	B4	IE29	G5
3E52	B4	IE30	H5
3E53	B7	IE31	I5
3E54	G5	IE32	G5
3E55	E2	IE33	E12
3E56	E2	IE34	C3
3E57	E2	IE35	C3
3E58	G5	IE36	B3
3E59	B3	IE37	E5
3E60	A7		
3E61	E6		
3E62	D5		
3E63	B7		
3E64	B3		
3E69	H8		
3E70	H9		
3E73	B6		
3E74	I5		
3E77	A8		
3E78	A8		
3E79	B8		
3E80	C8		
3E81	E12		
3E82	F12		
3E83	F11		
3E84	G10		
3E85	G12		

Small Signal Board: EPLD OSD

B 19 C EPLD OSD

B 19 C

A/D CONVERTER

7E24 AD9283BRS-80 8-BIT ADC

7E23 AD9883AKST

CLAMP

A/D

SYNC PROCESSING AND CLOCK GENERATION

SERIAL REGISTER AND PWR MANAGMENT

REF

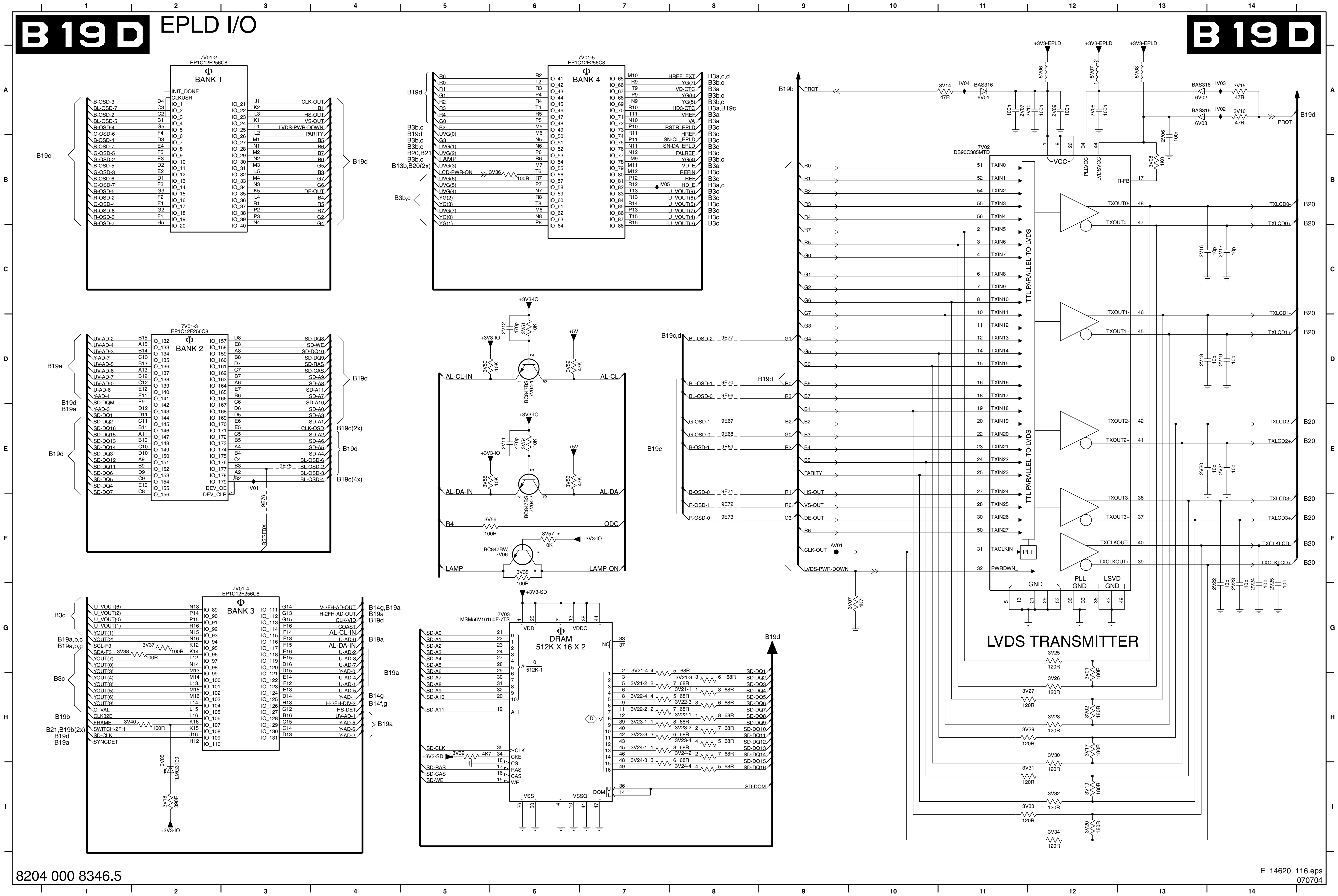
7E22 BC847BW

8204 000 8346.5

E_14620_115.eps 070704

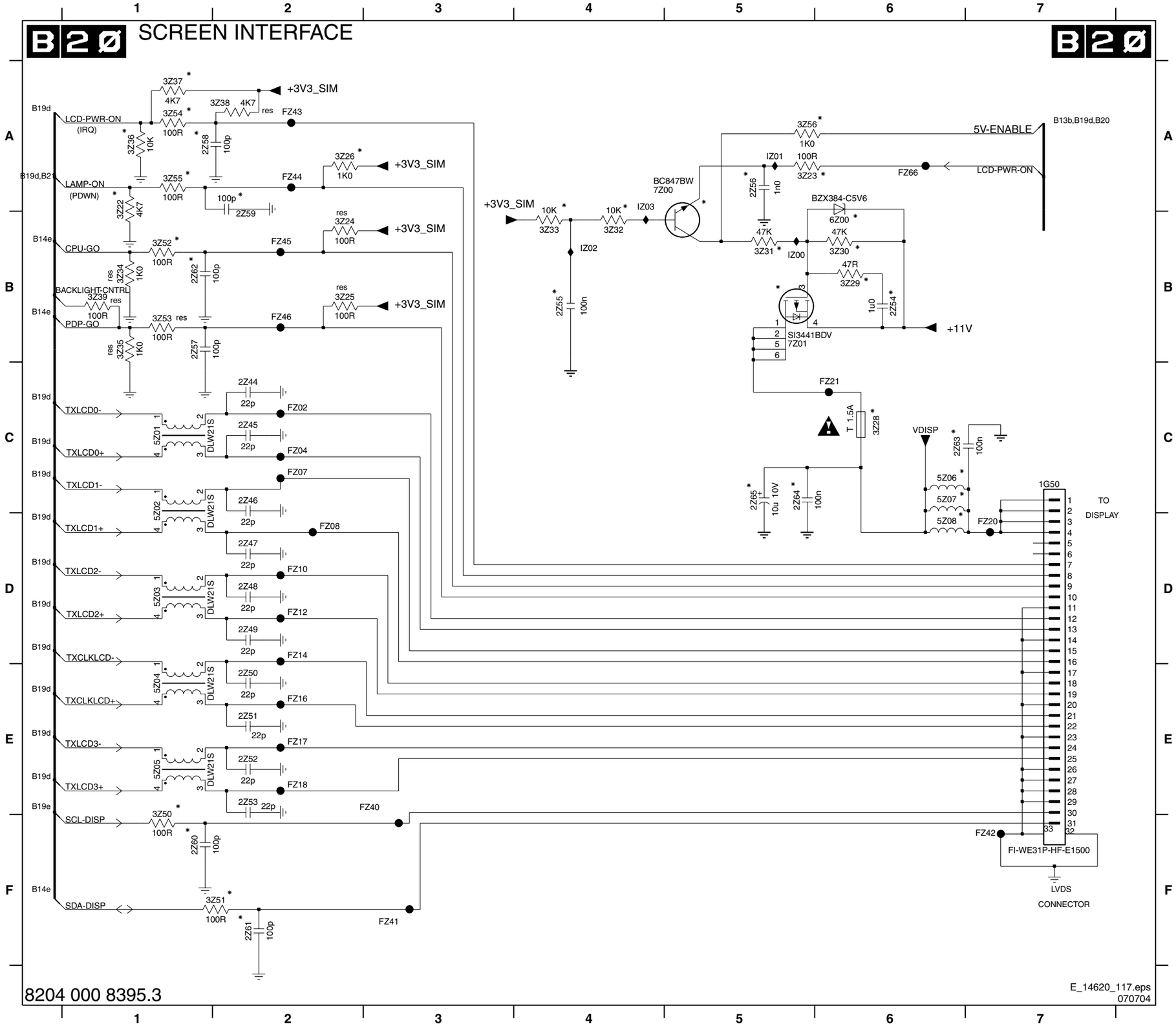
2E02 D1
2E04 D2
2E05 B4
2E07 A5
2E08 C5
2E09 A6
2E10 B5
2E11 B6
2E12 B6
2E13 B6
2E14 B6
2E15 B6
2E16 B5
2E17 B6
2E18 B6
2E19 B6
2E20 C6
2E21 D7
2E22 D7
2E23 E7
2E24 E7
2E25 F7
2E26 G7
2E27 G7
2E28 H4
2E29 H4
2E30 H4
2E32 F1
2E34 H4
2E35 I12
2E39 B1
2E48 H6
2E53 G6
3E04 D1
3E05 C1
3E06 D6
3E07 E6
3E08 F6
3E09 E1
3E10 E2
3E11 G6
3E12 G6
3E13 E1
3E14 G7
3E15 F1
3E16 H5
3E18 H7
3E19 I7
3E37 B1
3E90 D1
3E91 H12
5E00 A5
5E01 B5
5E02 B5
5E03 C5
7E22 E1
7E23 C8
7E24 B2
9E74 E2
AL10 H12
FE01 G6
FE03 G6
FE04 H12
FL01 B4
IE00 H4
IE01 H5
IE03 E1
IE04 E2
IE05 F2
IL01 A7
IL02 B7
IL03 C7
IL05 G8

Small Signal Board: EPLD I/O



2V06 B13
2V07 A11
2V08 A12
2V09 A12
2V10 A12
2V11 E6
2V12 D6
2V16 C13
2V17 C14
2V18 D13
2V19 D14
2V20 E13
2V21 E14
2V22 G14
2V23 G14
2V24 G14
2V25 G14
3V01 H12
3V02 H12
3V07 G10
3V08 B13
3V14 A11
3V15 A14
3V16 A14
3V17 H12
3V18 I2
3V19 I12
3V20 I12
3V21-1 H8
3V21-2 H7
3V21-3 H8
3V21-4 G7
3V22-1 H8
3V22-2 H7
3V22-3 H8
3V22-4 H7
3V23-1 H7
3V23-2 H8
3V23-3 H7
3V23-4 H8
3V24-1 H7
3V24-2 H8
3V24-3 H7
3V24-4 I8
3V25 G12
3V26 H12
3V27 H12
3V28 H12
3V29 H12
3V30 H12
3V31 I12
3V32 I12
3V33 I12
3V34 I12
3V35 F6
3V36 B6
3V37 G2
3V38 G1
3V39 H5
3V40 H1
3V50 D5
3V51 D6
3V52 D6
3V53 E6
3V54 E6
3V55 E5
3V56 F6
3V57 F6
5V06 A12
5V07 A12
5V08 A13
6V01 A11
6V02 A13
6V03 A13
6V05 I2
7V01-2 A2
7V01-3 D2
7V01-4 G3
7V01-5 A7
7V02 B11
7V03 G6
7V04-1 D6
7V04-2 F6
7V06 F6
9E66 D8
9E67 E8
9E68 E8
9E69 E8
9E70 D8
9E71 E8
9E72 F8
9E73 F8
9E75 E3
9E76 F3
9E77 D8
AV01 F9
IV01 E3
IV02 A14
IV03 A14
IV04 A11
IV05 B7

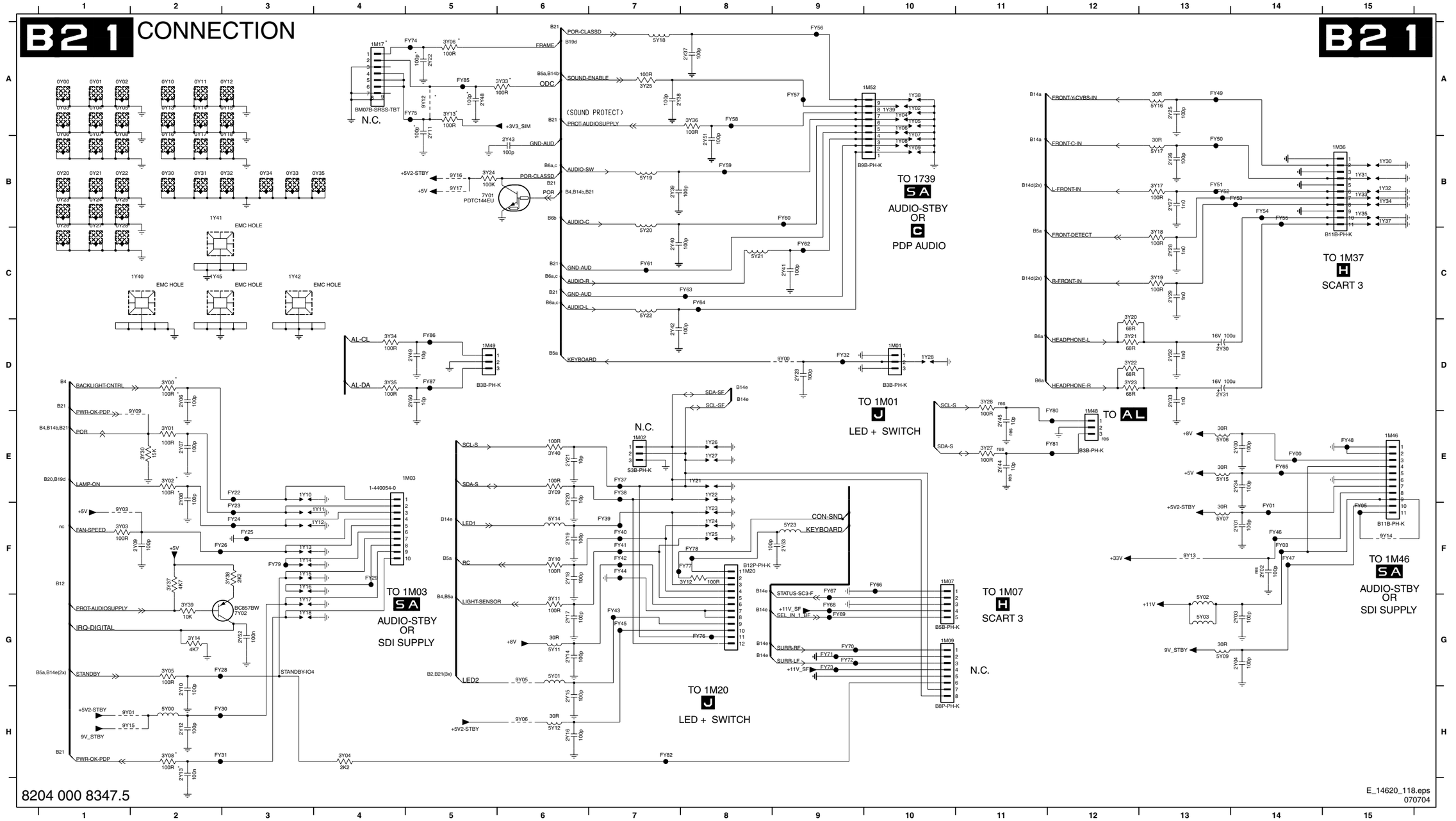
Small Signal Board: Screen Interface



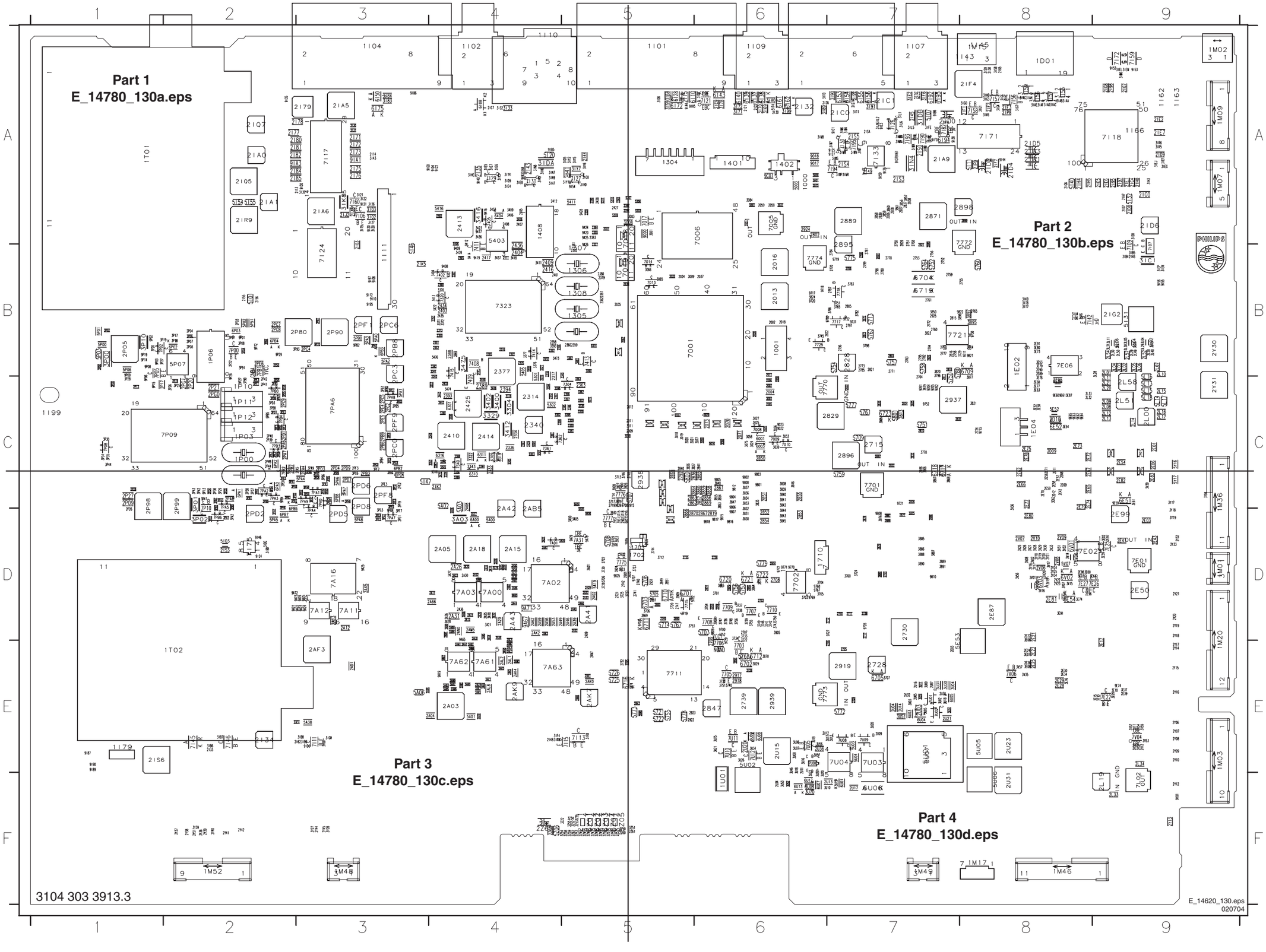
1G50 C7	5Z05 E1	
2Z44 C2	5Z06 C6	
2Z45 C2	5Z07 C6	
2Z46 C2	5Z08 D6	
2Z47 D2	6Z00 B6	
2Z48 D2	7Z00 A4	
2Z49 D2	7Z01 B5	
2Z50 E2	FZ02 C2	
2Z51 E2	FZ04 C2	
2Z52 E2	FZ07 C2	
2Z53 E2	FZ08 D2	
2Z54 B6	FZ10 D2	
2Z55 B4	FZ12 D2	
2Z56 A5	FZ14 D2	
2Z57 B1	FZ16 E2	
2Z58 A1	FZ17 E2	
2Z59 A2	FZ18 E2	
2Z60 F1	FZ20 D7	
2Z61 F2	FZ21 C6	
2Z62 B1	FZ40 E3	
2Z63 C6	FZ41 F3	
2Z64 C5	FZ42 F7	
2Z65 C5	FZ43 A2	
3Z22 A1	FZ44 A2	
3Z23 A5	FZ45 B2	
3Z24 B2	FZ46 B2	
3Z25 B2	FZ66 A6	
3Z26 A2	IZ00 B5	
3Z28 C6	IZ01 A5	
3Z29 B6	IZ02 B4	
3Z30 B6	IZ03 A4	
3Z31 B5		
3Z32 B4		
3Z33 B4		
3Z34 B1		
3Z35 B1		
3Z36 A1		
3Z37 A1		
3Z38 A2		
3Z39 B1		
3Z50 F1		
3Z51 F2		
3Z52 B1		
3Z53 B1		
3Z54 A1		
3Z55 A1		
3Z56 A5		
5Z01 C1		
5Z02 C1		
5Z03 D1		
5Z04 E1		

Small Signal Board: Connection

0Y00 A1	0Y10 A2	0Y20 B1	0Y30 B2	1M07 F10	1Y02 A10	1Y12 F4	1Y23 F8	1Y33 B15	1Y45 C2	2Y09 F2	2Y18 F6	2Y28 C13	2Y39 B7	2Y50 D5	3Y05 G2	3Y17 B13	3Y27 E11	3Y39 G2	5Y11 G6	5Y21 C8	9Y06 H6	FY01 F14	FY29 F4	FY42 F7	FY51 B13	FY60 B9	FY69 G9	FY78 F8
0Y01 A1	0Y11 A2	0Y21 B1	0Y31 B2	1M09 G10	1Y04 A10	1Y13 F3	1Y24 F8	1Y34 B15	2Y00 E14	2Y10 H2	2Y19 F6	2Y29 C13	2Y40 C7	2Y51 B8	3Y06 A5	3Y18 C13	3Y28 D11	3Y40 E6	5Y12 H6	5Y22 C7	9Y09 E2	FY03 F14	FY30 H2	FY43 G7	FY52 B13	FY61 C7	FY70 G9	FY79 F3
0Y02 A1	0Y12 A3	0Y22 B1	0Y32 B3	1M17 A4	1Y05 A10	1Y14 F3	1Y25 F8	1Y35 B15	2Y01 F14	2Y11 A5	2Y20 E6	2Y30 D13	2Y41 C9	2Y52 G3	3Y08 H2	3Y19 C13	3Y30 E2	5Y00 H2	5Y14 F6	5Y23 F9	9Y12 A5	FY05 F15	FY31 H2	FY44 F7	FY53 B14	FY62 C9	FY71 G9	FY80 E12
0Y03 A1	0Y13 A2	0Y23 B1	0Y33 B3	1M20 F8	1Y06 A10	1Y15 F3	1Y26 E8	1Y37 B15	2Y02 F14	2Y12 H2	2Y21 E6	2Y31 D13	2Y42 D7	2Y53 F9	3Y09 E6	3Y20 C12	3Y33 A6	5Y01 G6	5Y15 E13	7Y01 B5	9Y13 F13	FY22 E3	FY32 D9	FY45 G7	FY54 B14	FY63 C8	FY72 G9	FY81 E12
0Y04 A1	0Y14 A2	0Y24 B1	0Y34 B3	1M36 B15	1Y07 A10	1Y16 F3	1Y27 E8	1Y38 A10	2Y03 G14	2Y13 H2	2Y22 A5	2Y32 D13	2Y43 B6	3Y00 D2	3Y10 F6	3Y21 D12	3Y34 D4	5Y02 G13	5Y16 A13	7Y02 G3	9Y14 F15	FY23 F3	FY37 E7	FY46 F14	FY55 B14	FY64 C8	FY73 G9	FY82 H7
0Y05 A1	0Y15 A3	0Y25 B1	0Y35 B4	1M46 E15	1Y08 B10	1Y17 G3	1Y28 D10	1Y39 A10	2Y04 G14	2Y14 G6	2Y23 D9	2Y33 D13	2Y44 E11	3Y01 E2	3Y11 G6	3Y22 D12	3Y35 D4	5Y03 G13	5Y17 B13	9Y00 D9	9Y15 H1	FY24 F3	FY38 E7	FY47 F14	FY56 A9	FY65 E14	FY74 A5	FY85 A5
0Y06 A1	0Y16 A2	0Y26 B1	1M01 D10	1M48 E12	1Y09 B10	1Y18 G3	1Y30 B15	1Y40 C2	2Y06 D2	2Y15 H6	2Y25 A13	2Y34 E14	2Y45 E11	3Y02 E2	3Y12 F8	3Y23 D12	3Y36 A8	5Y06 E13	5Y18 A7	9Y01 H1	9Y16 B5	FY25 F3	FY39 F7	FY48 E15	FY57 A9	FY66 F10	FY75 A5	FY86 D5
0Y07 A1	0Y17 A2	0Y27 B1	1M02 E7	1M49 D5	1Y10 E3	1Y21 E8	1Y31 B15	1Y41 B2	2Y07 E2	2Y16 H6	2Y26 B13	2Y37 A8	2Y48 A5	3Y03 F1	3Y13 A5	3Y24 B5	3Y37 F2	5Y07 F13	5Y19 B7	9Y03 F1	9Y17 B5	FY26 F2	FY40 F7	FY49 A13	FY58 A8	FY67 F9	FY76 G8	FY87 D5
0Y08 A1	0Y18 A3	0Y28 B1	1M03 E5	1M52 A10	1Y11 F4	1Y22 E8	1Y32 B15	1Y42 C3	2Y08 E2	2Y17 G6	2Y27 B13	2Y38 A7	2Y49 D5	3Y04 H4	3Y14 G2	3Y25 A7	3Y38 F3	5Y09 G13	5Y20 C7	9Y05 G6	FY00 E14	FY28 G2	FY41 F7	FY50 B13	FY59 B8	FY68 G9	FY77 F8	



Layout Small Signal Panel (Top Side Overview)



Layout Small Signal Panel Mapping (Top Side)

1000 A6	2388 B4	2829 C7	2A42 D4	2I34 E2	2P02 B1	2Y12 F9	3418 B4	3869 D5	3I43 A3	3IV6 A8	3U13 E7	5773 E5	6I75 A3	7I93 A7	9A22 D3
1001 B6	2389 C4	2830 C7	2A43 D4	2I35 A4	2P03 B2	2Y13 F9	3422 B4	3870 E6	3I58 A5	3IW6 A9	3U14 E7	5775 B7	6I92 A7	7I94 A7	9A23 D3
1304 A5	2391 A4	2831 C7	2A44 D4	2I38 A8	2P04 B2	2Y14 E9	3423 A4	3874 E5	3I59 A5	3IY1 A5	3U15 F7	5777 C7	6I93 A7	7I95 A7	9A24 D3
1305 B5	2393 C4	2832 C7	2A45 D3	2I41 A5	2P05 B1	2Y15 E9	3433 A4	3875 D6	3I69 A6	3IY2 A5	3U16 E6	5778 E5	6I94 A7	7L02 F9	9A25 D3
1306 B4	2394 C4	2833 C7	2A46 D5	2I43 A4	2P06 B2	2Y16 E9	3436 A4	3876 D7	3I70 A6	3IY3 A4	3U17 E7	5779 D6	6P02 B2	7P00 B2	9A60 D4
1307 B5	2395 C5	2834 C7	2A49 D4	2I44 A5	2P07 B2	2Y17 E9	3437 B4	3877 C8	3I71 A6	3IY4 A4	3U18 E6	5780 B7	6P03 B2	7P02 B1	9A61 E4
1308 B4	2396 C5	2835 C7	2A50 D4	2I45 A7	2P08 B2	2Y18 D9	3439 B4	3885 D7	3I72 A6	3IY5 A5	3U19 E6	5800 C5	6PA0 C2	7P05 B2	9A65 D4
1401 A6	2397 C4	2836 C5	2A53 D4	2I46 B9	2P09 C1	2Y19 D9	3442 C4	3886 D7	3I78 A6	3IY6 A5	3U20 F6	5801 C7	6PA1 C2	7P08 C1	9A67 D4
1402 A6	2398 C4	2837 A7	2A54 D4	2I48 E4	2P10 C1	2Y20 D9	3443 C4	3887 D7	3I83 A3	3IY7 A5	3U21 E6	5A00 D4	6PA2 C2	7P09 C2	9A71 D4
1408 A4	2401 B4	2838 A7	2A56 D4	2I49 A7	2P13 C1	2Y21 D9	3444 B4	3888 D7	3I84 A3	3L04 B9	3U22 F6	5A01 E4	6PB2 C3	7P10 C2	9A72 D2
1702 D5	2403 B4	2839 A7	2A59 D4	2I53 D2	2P17 C1	2Y30 B9	3447 B4	3889 D7	3I89 A6	3L05 B9	3U23 F6	5A02 C4	6PB3 B3	7PA0 C3	9A73 D2
1703 D5	2404 B4	2840 C5	2A62 D4	2I55 B2	2P19 C2	2Y31 C9	3448 C4	3890 D7	3I90 A7	3L11 B9	3U25 E6	5A03 C4	6PB4 B2	7PA1 C3	9A74 D3
1710 D7	2405 A4	2841 C6	2A66 D4	2I56 B2	2P20 C2	2Y32 D9	3449 C4	3891 D7	3I91 A7	3L19 B9	3U26 E6	5A06 E3	6PB6 D2	7PA2 C2	9A75 D3
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1E02 B8	2407 A4	2844 B7	2A95 E3	2I62 E3	2P22 B2	2Y37 F2	3461 B5	3897 B8	3I99 A6	3L21 B9	3U29 E7	5A38 E3	6PB8 C3	7PA4 C3	9A79 D5
1E04 C8	2408 A4	2845 D6	2AA6 D5	2I65 A8	2P26 D1	2Y38 F2	3462 B5	3898 B8	3IA0 A6	3L28 B9	3U30 E7	5E51 D8	6U01 F7	7PA5 C2	9C00 A5
1I11 A3	2409 B4	2846 D6	2AA7 D4	2I71 A3	2P27 C1	2Y39 F2	3472 C4	3903 D6	3IAA A8	3L29 B9	3U31 E7	5E52 C8	6U03 E7	7PA6 C2	9C01 A6
1I53 A8	2410 C4	2847 E6	2AB2 D4	2I72 A3	2P28 C1	2Y40 F2	3473 B4	3905 D6	3IAB A8	3L30 B9	3U34 E6	5E53 E7	6U04 E7	7PA7 D3	9E59 C9
1I56 A8	2411 B4	2848 E5	2AB5 D4	2I73 A3	2P34 C2	2Y41 F2	3474 C4	3906 C7	3IAC A8	3L31 B9	3U46 E6	5E56 C8	6U05 E7	7PA8 C3	9E60 C8
1I57 A8	2412 A4	2849 B7	2AB6 D4	2I75 A3	2P35 C2	2Y42 F2	3475 B4	3909 D5	3IAD A8	3L32 C8	3U51 E7	5I01 B2	6U06 F7	7PA9 C3	9E61 C8
1I59 A8	2413 A4	2850 C6	2AB7 D4	2I76 A3	2P36 C2	2Y44 F3	3476 B4	3913 D5	3IAE A8	3L33 C8	3U52 F6	5I03 D2	6U07 F6	7PB0 C2	9E62 C8
1I79 E1	2414 C4	2851 C6	2AD1 E3	2I77 A2	2P37 C2	2Y45 F3	3701 D6	3914 D5	3IAF A8	3P00 C1	3U53 F6	5I07 A7	6U08 E6	7PB1 B2	9E63 C8
1M01 D9	2416 B4	2852 D6	2AF3 E3	2I78 A3	2P38 C2	2Y51 F2	3703 D6	3915 C5	3IAG A8	3P01 C2	3U56 E6	5I11 A8	6U09 E6	7PB2 C2	9E64 C8
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1M03 E9	2425 C4	2854 D6	2AK0 E5	2I80 A2	2P40 C2	2Z45 F5	3705 D6	3917 C5	3IB4 B9	3P07 B2	3U70 F6	5I31 B9	6U17 F6	7PB4 C2	9E74 E9
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1M09 A9	2428 A5	2856 C6	2AK2 D4	2I82 A2	2P42 C2	2Z47 F5	3707 E7	3923 D5	3IB6 E2	3P10 B1	3V02 D8	5I40 A8	6V02 D8	7U01 E7	9I08 B3
1M15 A8	2429 C4	2857 C6	2AK3 D4	2I84 A2	2P43 C2	2Z48 F5	3712 D5	3924 D5	3IB7 E2	3P17 B2	3V07 D8	5I46 B3	6V03 D8	7U02 E7	9I10 B3
1M17 F8	2432 B4	2858 C6	2AK4 E4	2I85 A2	2P44 C2	2Z49 F5	3713 C5	3925 D5	3IB8 E3	3P18 B2	3V08 D8	5I47 C3	7001 B6	7U03 E7	9I12 B3
1M20 D9	2433 C4	2859 C6	2AK5 E4	2I95 A9	2P50 B2	2Z50 F5	3714 C5	3926 C5	3IB9 E3	3P19 B1	3V14 D8	5I54 A2	7005 A6	7U04 E7	9I20 A3
1M36 C9	2434 B4	2860 C6	2AK6 E5	2I97 A9	2P80 B3	2Z51 F5	3715 D5	3927 C5	3IBC D2	3P20 B1	3V15 D8	5I55 A2	7006 B6	7U05 E6	9I21 A3
1M46 F8	2435 B4	2861 C6	2AK7 E5	2I98 A9	2P81 B3	2Z52 F5	3716 C5	3928 C5	3IBD D2	3P25 C2	3V16 D8	5L02 B9	7008 C6	7U06 E6	9I22 A4
1M48 F3	2436 B4	2862 C5	2AK9 E4	2IA0 A2	2P90 B3	2Z53 F5	3717 C5	3929 C5	3IC1 B9	3P26 C2	3V17 D8	5L04 B9	7009 C6	7U08 E7	9I24 D2
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1P03 C2	2710 D7	2866 D5	2AL3 E4	2IA7 A9	2PA5 C3	2Z60 F5	3721 D5	3933 D5	3ID1 A6	3P30 C1	3V22 C9	5L15 C9	7017 A5	7U12 E6	9I30 A3
1P06 B2	2711 D7	2867 D6	2AL4 D4	2IA9 A7	2PA6 C2	2Z61 F5	3722 D6	3A00 D5	3ID5 A5	3P34 C1	3V23 C9	5L16 C9	7018 A5	7V04 E9	9I35 A2
1P10 C2	2712 D7	2868 C5	2AL8 E4	2IB6 B8	2PA7 C2	2Z62 F5	3723 D5	3A01 D5	3ID8 A5	3P35 C1	3V24 C9	5L17 C9	7019 B5	7V06 E8	9I36 A8
1P11 C2	2715 C7	2869 C6	2AL9 E4	2IC0 A7	2PA8 C2	2Z63 F4	3724 D7	3A03 D4	3ID9 A4	3P41 C2	3V25 D8	5L18 C9	7304 B5	9016 C6	9I37 A7
1P12 C2	2716 E7	2870 D5	2ALA E4	2IC1 A7	2PB3 C3	2Z65 F4	3725 D5	3A05 D5	3IDA A4	3P42 C2	3V26 D8	5P00 B1	7320 B4	9017 A6	9I38 A7
1T01 A2	2717 D7	2871 A7	2AM0 D4	2IC4 A9	2PB4 C3	3003 C6	3726 D5	3A07 D5	3IDB A7	3P43 C2	3V27 D8	5P01 B1	7323 B4	9018 A6	9I40 A4
1T02 E2	2718 C5	2872 B7	2AM1 D4	2IC7 A4	2PB5 C3	3011 C5	3727 D5	3A09 D5	3IE2 A7	3P44 C1	3V28 D8	5P02 B2	7340 C4	9022 C6	9I44 A8
1U01 F6	2719 C5	2873 B7	2AM2 E4	2IC9 A6	2PB6 C3	3012 B5	3728 D5	3A11 D4	3IE4 A4	3P61 C3	3V29 D8	5P03 B1	7361 C4	9023 C6	9I46 D2
2002 B6	2720 D5	2874 D6	2AM3 E4	2ID0 A7	2PB7 C2	3018 C5	3729 B8	3A12 D4	3IE5 A4	3P90 C2	3V30 D8	5P04 B2	7362 C5	9302 C4	9I52 A9
2004 C6	2721 D5	2875 D7	2AM5 D4	2ID1 A8	2PB8 B3	3019 C5	3730 D5	3A13 D4	3IE6 A4	3P91 B2	3V31 D8	5P06 B1	7402 B4	9303 C4	9I53 A9
2005 C6	2722 D5	2876 C7	2AM6 E4	2ID2 A8	2PB9 C3	3020 C5	3732 E6	3A14 D4	3IE7 A4	3P93 B3	3V32 D8	5P07 B2	7405 A4	9304 C4	9I54 A5
2006 C6	2723 D7	2877 D7	2AM7 E4	2ID3 A8	2PC0 C3	3021 C5	3733 D6	3A15 D4	3IE8 A4	3PA0 C3	3V33 D8	5P51 B2	7408 B4	9305 C4	9I55 B9
2007 C6	2724 C8	2878 D7	2AM9 E4	2ID4 A8	2PC1 C3	3024 C6	3734 D6	3A16 D4	3IEF A9	3PA1 D2	3V34 D8	5PA0 B3	7409 C4	9314 B5	9I56 B9
2008 C6	2725 E7	2879 D7	2AN0 D4	2ID5 A8	2PC2 C3	3025 C6	3736 D6	3A18 D4	3IEG A9	3PA2 D2	3V35 E8	5PA1 C3	7411 B4	9315 C5	9I59 A7
2009 C5	2726 E6	2880 D7	2AN1 E4	2ID6 A9	2PC3 B3	3026 C6	3737 D6	3A20 D4	3IEJ A9	3PA3 C3	3V36 C8	5PA2 B3	7413 B5	9316 C4	9I60 A3
2011 C5	2728 E7	2881 D5	2AN7 E5	2ID7 A9	2PC4 B3	3027 C6	3738 D6	3A21 D4	3IEL A9	3PA4 C3	3V39 C9	5PA3 B3	7414 B4	9322 B4	9I61 A7
2012 C5	2729 E7	2886 D7	2C01 A5	2ID8 A9	2PC5 C3	3033 C6	3739 D6	3A23 D4	3IEM A9	3PA5 C2	3V50 E9	5PA4 C3	7415 B4	9408 B4	9I83 A4
2013 B6	2730 D7	2887 D7	2D03 E7	2ID9 A9	2PC6 B3	3035 B5	3740 E6	3A26 D4	3IEN B9	3PA6 C3	3V51 E9	5PA5 D2	7701 C7	9409 B4	9I86 A3
2014 B6	2732 E5	2888 D7	2D09 C8	2IE1 A9	2PC7 B2	3039 C6	3741 D6	3A27 D4	3IEP B9	3PA7 C3	3V52 E9	5PA6 C3	7702 D6	9412 A4	9I87 E1
2016 B6	2733 D6	2889 A7	2D10 C8	2IE2 A9	2PC8 B2	3047 A6	3742 D6	3A28 D4	3IF4 E4	3PA8 C2	3V53 E9	5PA7 C3	7703 E6	9414 B4	9I89 E1
2018 B6	2735 D5	2890 D5	2D11 C8	2IE5 A9	2PC9 C2	3058 C6	3743 D6	3A66 D4	3IF5 A7	3PA9 C3	3V54 E9	5PA8 D3	7705 E6	9416 A4	9I90 E1
2020 C6	2736 D6	2891 E6	2D12 C8	2IE6 A9	2PD1 C2	3059 C6	3744 D5	3AA0 E4	3IF6 A7	3PB0 C2	3V55 E9	5PB0 B3	7706 D6	9417 A4	9I95 B3
2025 B5	2738 D7	2895 A7	2E01 C9	2IE7 A9	2PD2 D2	3065 B5	3745 B6	3AA1 E4	3IF8 E5	3PB1 C2	3V56 D8	5U01 F7	7707 D6	9419 B4	9I97 B3
2027 C5	2739 E6	2896 C6	2E03 D9	2IF1 A8	2PD3 C3	3066 B5	3746 D6	3AA4 D4	3IF9 E4	3PB2 C2	3V57 E8	5U02 F6	7708 D6	9423 A5	9IA1 A3
2028 B6	2740 D5	2897 C7	2E06 C9	2IF2 A8	2PD4 C3	3068 C6	3747 D6	3AA5 E4	3IFE A7	3PB3 C2	3Y04 C9	5U03 E7	7709 D6	9424 A5	9IA3 A2
2029 C6	2741 D5	2898 A8	2E17 E9	2IF3 A8	2PD5 D3	3073 C6	3748 D6	3AA6 D4	3IFH A7	3PB4 C2	3Y17 C9	5U04 E7	7710 D6	9425 A5	9IA4 A5
2031 A6	2742 D5	2899 A8	2E21 D8	2IF4 A8	2PD6 C3	3074 C5	3749 D6	3AA7 E4	3IFL A7	3PB5 C3	3Y18 D9	5U05 E8	7711 D5	9426 B5	9IA5 A5
2034 B5	2743 D6	2900 C5	2E22 D8	2IF7 A8	2PD7 C3	3075 C6	3750 D6	3AA9 E4	3IG0 A8	3PB6 C3	3Y19 D9	5U06 F8	7715 D6	9428 A5	9IB5 A4
2035 B5	2744 D6	2901 D5	2E23 E8	2IG0 A9	2PD8 C3	3076 C5	3751 E6	3AB0 E4	3IG1 A8	3PB7 C2	3Y27 F3	5U07 E7	7717 B7	9700 D6	9IB6 A7
2037 B6	2745 E5	2902 D5	2E24 E8	2IG2 B9	2PD9 C3	3077 C6	3752 D6	3AB2 E4	3IG3 A8	3PB8 C2	3Y28 F3	5V06 D8	7718 B7	9703 D5	9IC1 A7
2039 B5	2747 D5	2914 D6	2E25 E8	2IG6 A8	2PE0 C2	3078 C5	3753 D5	3AB3 E4	3IG4 A8	3PB9 C2	3Y36 F2	5V07 D8	7721 B7	9704 C7	9IC3 A7
2058 A6	2749 D5	2915 C5	2E26 E8	2IG7 A9	2PE1 D3	3084 A6	3754 D6	3AB4 E4	3IG6 A8	3PC1 C2	3Y39 F2	5V08 D8	7725 B6	9705 C7	9ID0 E3
2059 A6	2750 A7	2916 D5	2E28 E8	2IG8 A9	2PE2 C3	3089 B5	3755 D6	3AB5 E4	3IG7 A8	3PC2 D3	3Z22 F5	5Y16 C9	7770 C6	9707 D5	9IF0 A7
2067 B5	2751 A7	2917 E6	2E29 E8	2IH0 A9	2PE3 C3	3090 C6	3756 D6	3AB6 D4	3IGH E3	3PC3 D3	3Z34 F5	5Y17 C9	7772 B8	9708 C5	9P00 B1
2070 C6	2752 B7	2918 E6	2E30 E8	2IH4 A8	2PE4 C3	3091 A6	3760 D7	3AB7 E4	3IH3 A9	3PC4 D3	3Z35 F5	5Z01 F5	7773 E6	9709 D5	9P01 B2
2071 C6	2753 B7	2919 E7	2E32 E9	2IH5 A8	2PE5 C3	3099 C6	3765 B7	3AB8 D4	3IH5 A4	3PC6 C3	3Z50 F5	5Z02 F5	7774 B6	9711 B8	9P02 B1
2073 C6	2755 B8	2921 B7	2E34 E8	2IJ2 A3	2PE6 B2	3302 C4	3766 B7	3AB9 D4	3IH6 A4	3PC7 C3	3Z51 F5	5Z03 F5	7775 D5	9713 C8	9P03 B1
2075 A6	2756 B7	2922 E5	2E39 E9	2IJ3 A3	2PF1 B3	3304 C4	3778 C7	3AC0 E4	3IH7 A4	3PC8 C3	3Z52 F5	5Z04 F5	7776 C5	9717 B6	9P06 C1
2301 C4	2758 B7	2923 E5	2E41 D9	2IK5 B3	2PF3 C3	3306 C4	3782 B7	3AC1 E4	3IHA A4	3PC9 C3	3Z53 F5	5Z05 F5	7777 D5	9718 B6	9P08 B1
2305 B4	2759 B7	2924 A6	2E42 C8	2IK7 C4	2PF8 C3	3317 C4	3783 B7	3C01 A5	3IHB A8	3PD0 C3	3Z54 F5	5Z06 F4	7A00 D4	9719 B7	9P13 C2
2314 C4	2760 B7	2925 B7	2E43 D9	2IP0 A8	2PF9 C3	3318 C4	3796 B7	3C03 A5	3IHC A8	3PD1 C2	3Z55 F5	6001 C6	7A01 D4	9720 B6	9P14 B1
2315 C4	2761 B7	2926 A7	2E50 D9	2IP8 A8	2PG0 C2	3320 B4	3798 B7	3C06 A5	3IHD A5	3PD2 C3	5000 A6	6003 C6	7A02 D4	9721 C7	9P15 C1
2316 B4	2762 B7	2927 A7	2E54 C9	2IQ5 A2	2PG1 C2	3321 B4	3805 C7	3C07 B5	3IHE A4	3PD3 C2	5001 A6	6301 C4	7A03 D4	9722 D5	9P19 B1
2317 B4	2763 B7	2928 A7	2E56 C8	2IQ7 A2	2U03 E7	3322 C4	3819 C7	3C08 A5	3IJ0 A3	3PD4 C2	5003 A6	6309 C4	7A11 D3	9727 D7	9P26 C2
2318 B4	2764 C7	2929 D5	2E57 C8	2IR9 A2	2U04 E7	3329 C4	3820 B7	3C09 C5	3IJ1 A3	3PD5 C2	5301 C4	6310 C4	7A12 D3	9728 D7	9P27 C2
2322 B4	2765 B8	2931 D5	2E58 C8	2IS0 A7	2U05 E7	3330 C5	3821 C8	3E00 D8	3IJ9 A7	3PD6 C2	5302 C4	6311 C4	7A16 D3	9729 E6	9P29 B2
2324 C4	2768 A7	2935 D5	2E59 C8	2IS3 A7	2U07 E7	3332 C5	3823 B7	3E01 D8	3IK0 B8	3PD8 C2	5303 A5	6316 C4	7A31 D5	9730 B8	9P70 B3
2327 B5	2770 B7	2936 C7	2E62 C8	2IS4 A7	2U09 E7	3335 C5	3824 B6	3E02 D9	3IK6 B8	3PD9 C3	5306 A5	6319 C4	7A61 E4	9731 B7	9P72 B2
2329 C5	2771 B7	2937 C7	2E65 C8	2IS5 A7	2U11 E6	3336 C4	3826 C5	3E03 D8	3IK8 A3	3PE0 C2	5307 A5	6404 A4	7A62 E4	9732 B7	9PA0 C3
2330 C5	2772 B7	2938 C5	2E66 C8	2IS6 E1	2U12 E6	3340 C4	3827 C5	3E06 D8	3IL1 A7	3PE1 C2	5309 A5	6701 D5	7A63 E4	9750 B7	9PA1 C2
2331 C5	2773 B7	2939 E6	2E67 C8	2ISA A7	2U13 F7	3341 B4	3829 E6	3E07 E8	3IL2 A7	3PE2 C2	5310 A5	6702 E6	7E01 D9	9751 B7	9PA2 C3
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2333 C4	2778 B7	2A02 D5	2E69 C8	2L01 B9	2U15 E6	3343 C4	3831 D6	3E09 E9	3IL6 A7	3PE4 C2	5403 A4	6704 B7	7E06 B8	9761 C7	9PA4 D3
2334 C4	2780 B7	2A03 E4	2E70 C8	2L02 B9	2U16 E7	3344 C4	3832 D6	3E10 E9	3IM4 A7	3PE5 C2	5405 B4	6705 E7	7E22 E9	9762 C7	9PA5 C3
2336 C4	2781 B7	2A04 E4	2E71 C8	2L03 B9	2U17 F7	3345 C4	3833 C6	3E13 E9	3IM6 A7	3PF0 C3	5406 A4	6709 C8	7E25 D9	9767 D6	9PA6 C3
2339 A5	2782 B7	2A05 D4	2E72 C8	2L04 B9	2U18 E7	3346 C4	3834 C6	3E15 E9	3IM7 A7	3PF1 C2	5411 A5	6710 D5	7E26 D9	9768 D6	9PA7 C2
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2347 A5	2787 B7	2A09 D5	2E75 C8	2L07 B9	2U23 E8	3349 B5	3837 C6	3E50 C8	3IMB A7	3PF4 C3	5705 D5	6716 E5	7I07 B9	9771 D6	9PB2 B3
2348 A5	2788 B7	2A10 D4	2E77 C8	2L08 C9	2U30 E7	3353 C4	3838 C6	3E52 C8	3IMC A7	3PF6 C3	5706 D5	6717 C7	7I09 B9	9772 D6	9PB3 C2
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2352 B4	2795 B7	2A14 D4	2E81 D8	2L12 C9	2U36 E6	3371 B4	3842 C6	3E60 C8	3IMP A7	3PG0 C3	5713 B7	6721 D6	7I17 A3	9803 C6	9Y01 F9
2353 B4	2796 B7	2A15 D4	2E82 C9	2L13 C9	2V06 D8	3372 B4	3843 D6	3E61 C9	3IMR A7	3PG2 D2	5714 D5	6722 D6	7I18 A9	9804 C6	
2355 A5	2797 B7	2A16 D4	2E83 C9	2L14 C9	2V07 D8	3376 B4	3844 D6	3E62 C8	3IMS A7	3PG3 C3	5721 E5	6723 C7	7I21 A6	9805 C6	
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2357 B4	2799 B7	2A18 D4	2E89 B8	2L16 C9	2V09 D8	3387 C5	3846 C6	3E64 D9	3IMV A7	3PG5 C3	5725 E5	6E51 C9	7I26 A7	9807 D6	
2358 B4	2800 D5	2A20 D4	2E90 B8	2L17 C9	2V10 D8	3388 C4	3847 C6	3E73 B8	3IMW A7	3PG6 C2	5726 E5	6E52 C8	7I27 A5	9808 D7	
2359 B5	2802 A6	2A21 D4	2E91 B8	2L19 F8	2V11 E9	3390 C4	3848 C6	3E74 D8	3IN4 A7	3PH2 C3	5750 C7	6E54 D8	7I29 A4	9809 D6	
2360 B5	2805 B7	2A22 D4	2E95 C8	2L20 C9	2V12 E9	3393 B4	3849 D5	3E77 C8	3IN7 A4	3PH3 B3	5751 C7	6I08 A4	7I30 A7	9810 D7	
2361 B5	2809 A7	2A23 D4	2E96 D8	2L21 C9	2V16 D8	3394 C4	3850 B7	3E78 C8	3IN8 A4	3PH4 B2	5752 B7	6I10 A5	7I31 A4	9812 C6	
2362 B5	2810 C7	2A25 D4	2E97 D9	2L28 B9	2V17 D8	3395 C5	3851 D5	3E79 B8	3IN9 A4	3PH6 C2	5753 D6	6I28 A5	7I33 A7	9815 D6	
2363 C5	2811 C7	2A26 D4	2E98 D8	2L29 B9	2V18 D8	3396 C5	3853 C6	3E80 B8	3IQ2 A3	3PH7 D2	5754 B7	6I37 A6	7I42 B8	9816 D6	
2364 A5	2813 C7	2A27 D4	2E99 D9	2L30 B9	2V19 D8	3397 C5	3854 C6	3E87 C8	3IQ3 A3	3PH8 C3	5755 E5	6I38 A6	7I45 E2	9817 D6	
2365 B4	2814 B8	2A29 D5	2I03 B3	2L33 F9	2V20 D8	3398 C4	3855 C6	3E91 D8	3IR5 A9	3U01 F6	5756 D6	6I39 A6	7I46 E2	9818 D6	
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2368 B4	2816 B7	2A31 D4	2I14 A3	2L48 B9	2V22 D8	3400 C4	3857 A7	3I19 A3	3IS7 B9	3U03 E7	5758 B7	6I43 A6	7I57 A8	9822 B8	
2373 B4	2818 B7	2A32 D5	2I15 A5	2L49 B9	2V23 D8	3402 B4	3858 A7	3I20 A3	3IS8 A8	3U04 E7	5759 C7	6I50 A3	7I58 A8	9825 D5	
2376 B4	2819 D6	2A33 D5	2I21 A6	2L50 B9	2V24 D8	3404 B4	3859 A7	3I21 A3	3IS9 A8	3U05 E7	5760 B8	6I53 A7	7I59 A9	9826 C5	
2377 C4	2820 C7	2A35 D4	2I22 A6	2L51 C9	2V25 D8	3406 A4	3860 A7	3I22 A3	3IT0 A6	3U06 E6	5761 C7	6I54 A7	7I60 A3	9827 D5	
2379 B5	2821 B7	2A36 D4	2I26 A6	2L52 B9	2Y06 E9	3409 A4	3861 A7	3I26 A3	3IT1 A7	3U07 E6	5762 B7	6I55 A7	7I71 A8	9A04 C5	
2380 B5	2822 B6	2A37 D5	2I27 A7	2L54 B9	2Y07 E9	3411 B4	3864 D6	3I27 A3	3IT4 A6	3U08 E6	5764 B7	6I56 A7	7I72 A9	9A05 D5	
2381 B5	2824 B7	2A39 D5	2I30 A6	2L57 B9	2Y08 E9	3412 C4	3865 D6	3I32 A4	3IT7 B8	3U09 E7	5767 D5	6I61 A6	7I75 D2	9A06 D5	
2382 B5	2826 B7	2A40 D5	2I32 A6	2L58 B9	2Y09 E9	3413 B4	3867 C7	3I33 A4	3IT8 B8	3U10 F7	5768 E6	6I62 A6	7I82 A7	9A19 E4	
2383 A5	2828 B7	2A41 D5	2I33 E2	2P00 B1	2Y10 E9	3416 A4	3868 C7	3I39 A3	3IU4 B8	3U11 E7	5772 E7	6I72 A5	7I90 A7	9A21 D2	

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070704

Personal Notes:

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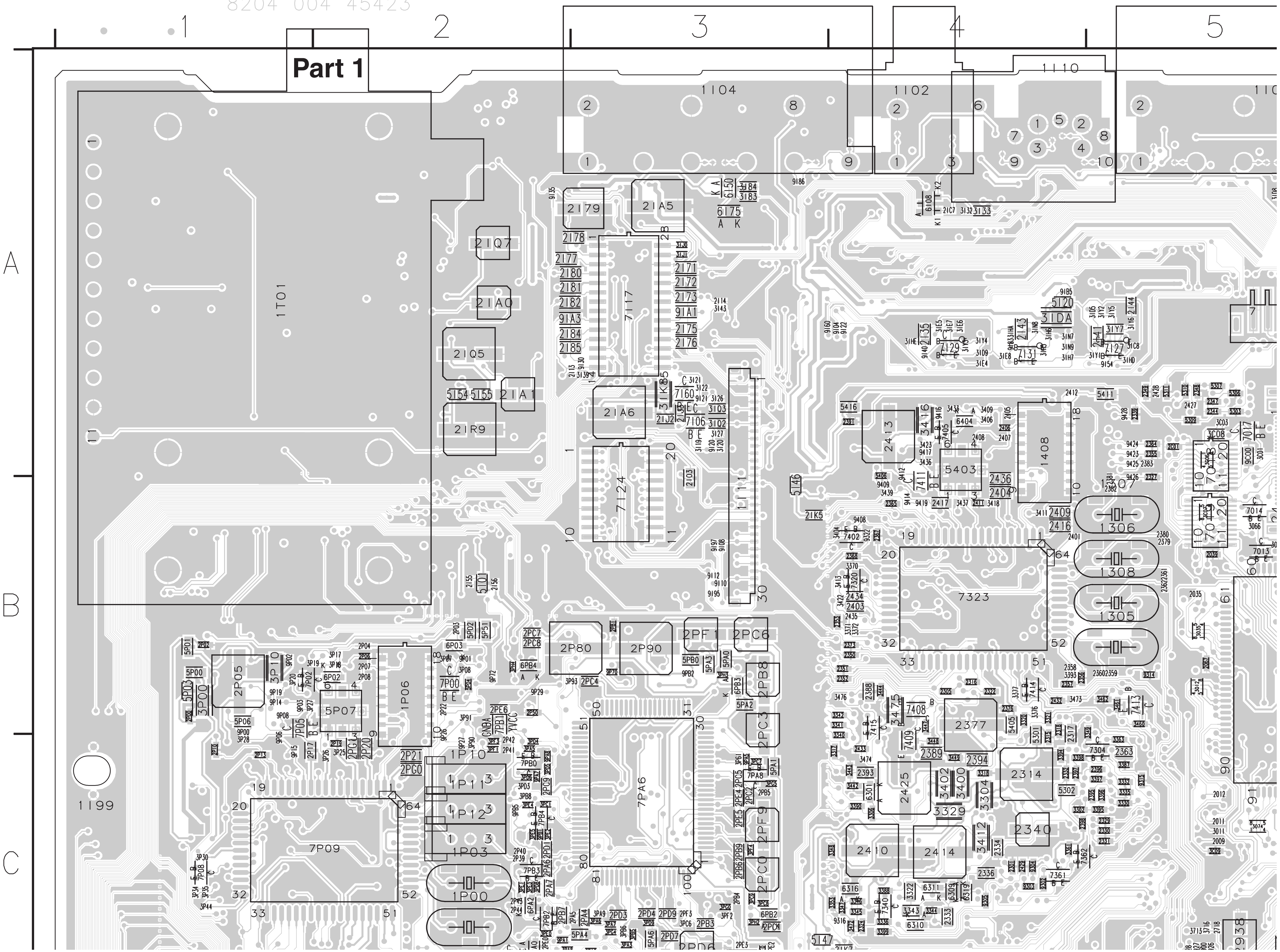
Layout Small Signal Panel (Top Side Part 1)



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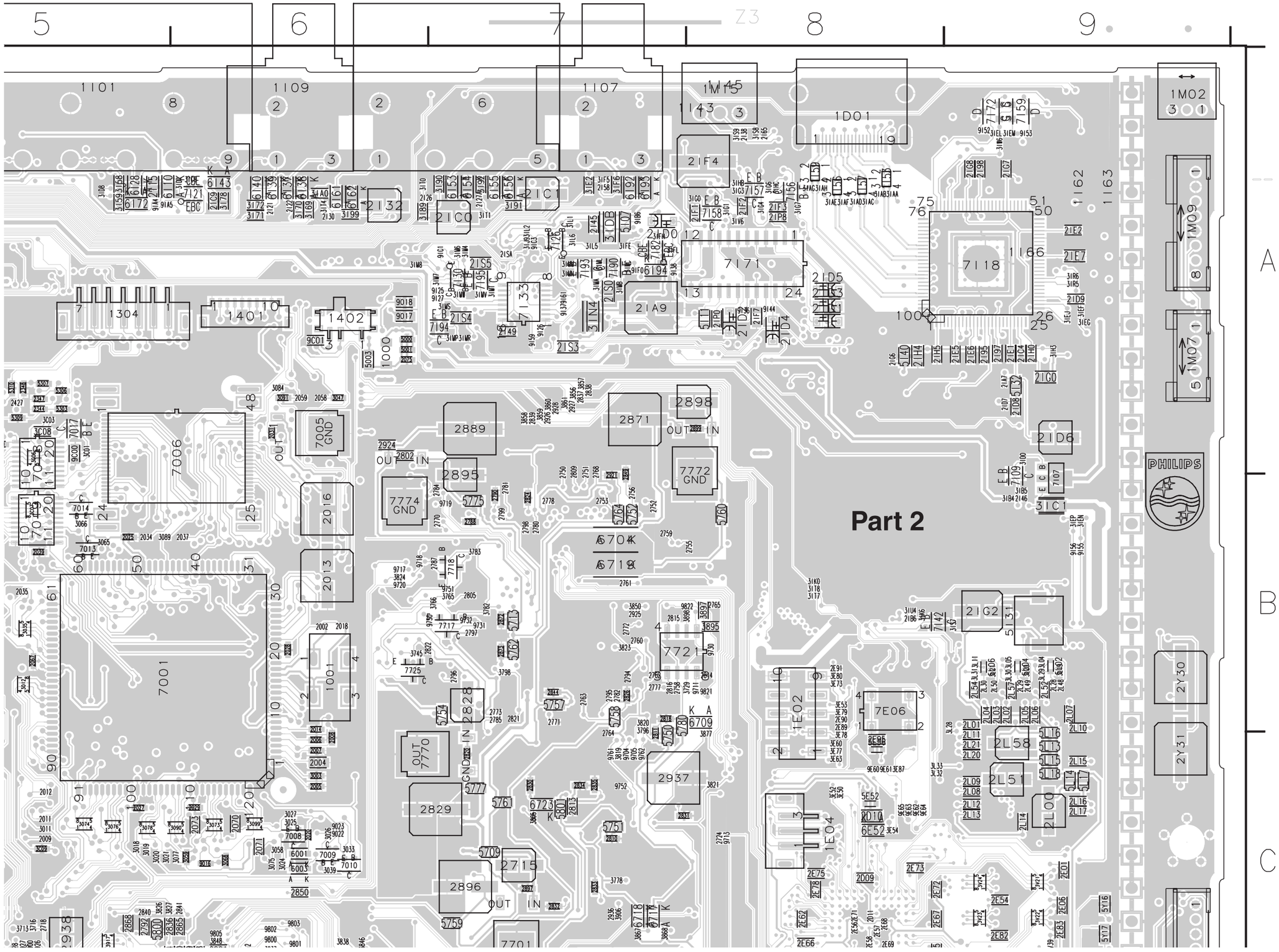

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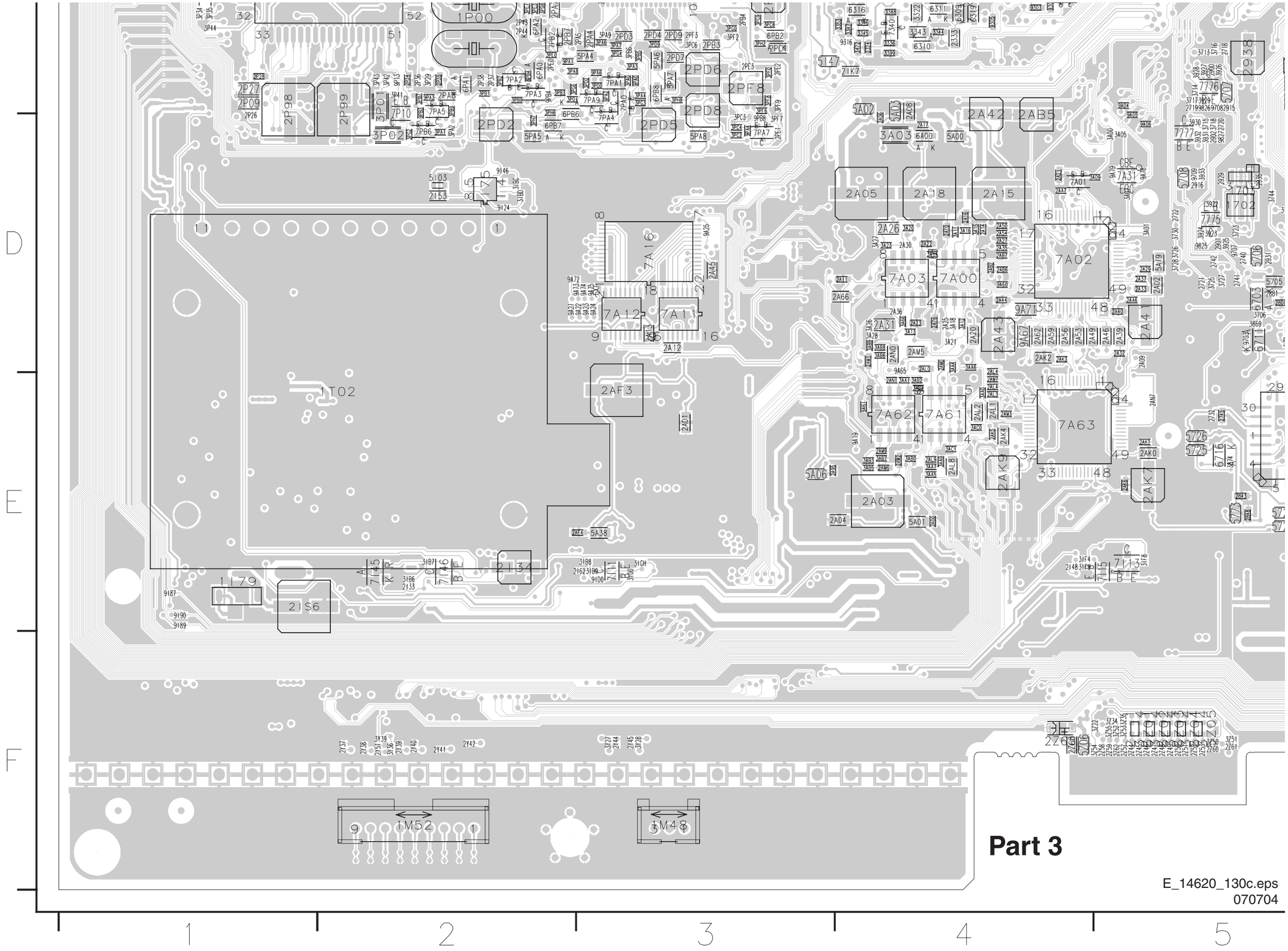
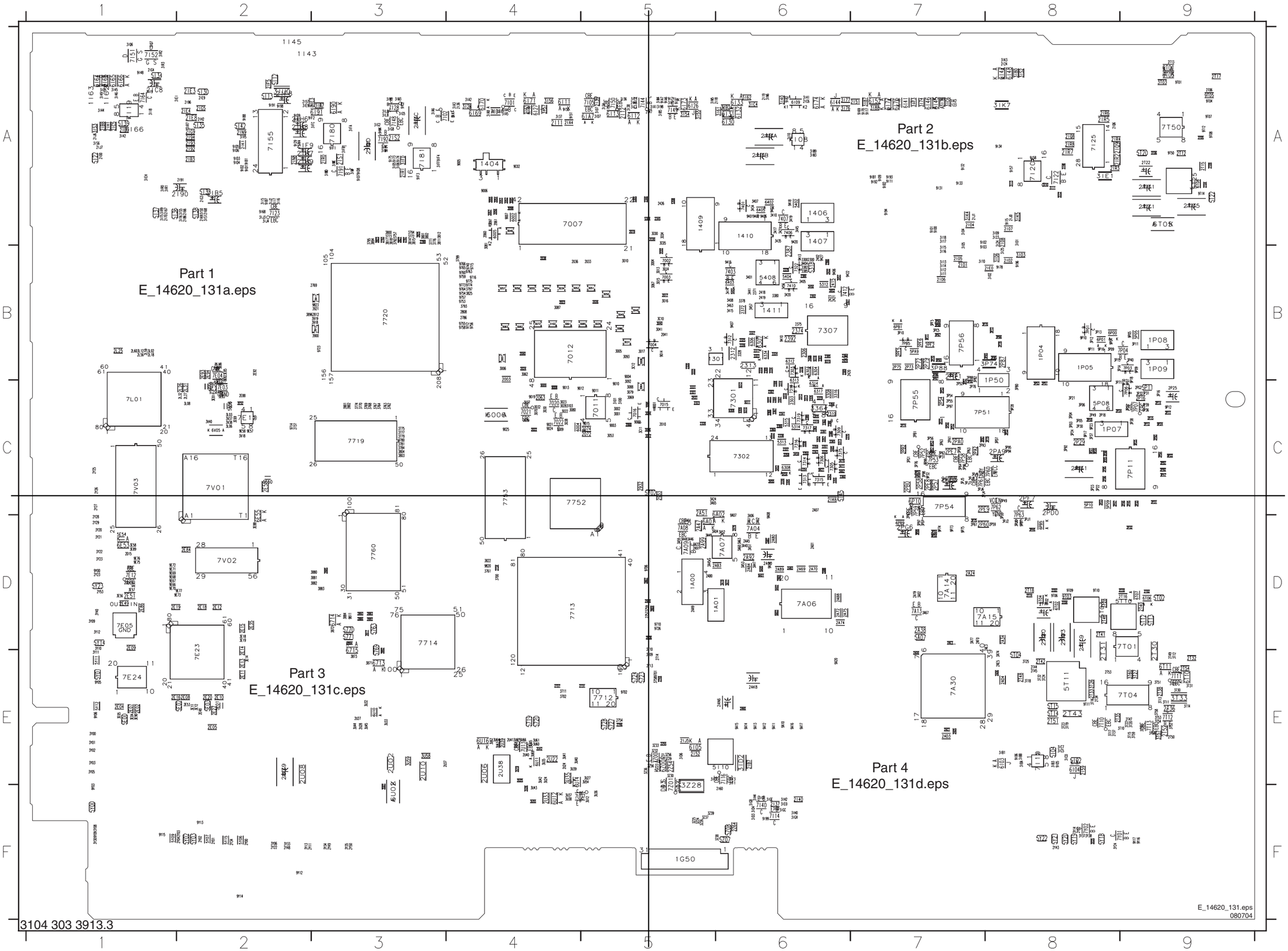


Layout Small Signal Panel (Top Side Part 4)

Layout Small Signal Panel (Bottom Side Overview)



Layout Small Signal Panel Mapping (Bottom Side)

1301 B5	2894 D3	2IB8 A1	2PE8 C7	3040 B5	3700 D4	3I05 B7	3IN5 A5	3T06 A9	5720 E4	6I71 A4	7P07 C9	9E68 D1
1404 A4	2920 D5	2IB9 A1	2PE9 C7	3041 B5	3702 E4	3I06 B8	3IN6 A6	3T10 E9	5723 E5	6I73 A5	7P11 C9	9E69 D1
1406 A6	2932 C5	2IC5 A1	2PF2 B7	3042 C5	3709 E5	3I07 A5	3INK A3	3T11 E9	5724 E5	6I74 A6	7P51 C7	9E70 D1
1407 A6	2933 C5	2IC6 A6	2PF5 B7	3045 A4	3710 D5	3I09 A8	3IO5 A3	3T12 E9	5727 E5	6I76 A7	7P52 C7	9E71 D1
1409 A5	2A01 D6	2IC8 A1	2PF6 B7	3046 A4	3711 E4	3I10 B7	3IO6 A3	3T13 E9	5728 E5	6I77 A7	7P53 C7	9E72 D1
1410 B6	2A07 C6	2IDA A6	2PF7 C8	3048 B5	3757 A3	3I11 B7	3IQ5 A1	3T14 E9	5763 D3	6I90 A3	7P54 C7	9E73 D2
1411 B6	2A19 D7	2IDB A6	2PG2 C9	3049 B5	3758 E5	3I12 B7	3IQ6 A1	3T15 E9	5769 E3	6I91 A3	7P55 C7	9E75 D1
1A00 D5	2A24 D7	2IDC A3	2PG6 D7	3050 B5	3759 D5	3I13 B7	3IQ7 A1	3T16 E8	5770 D3	6IA7 A5	7P56 B7	9E76 D1
1A01 D5	2A34 D8	2IDD A3	2T01 A9	3051 B5	3761 D4	3I14 B7	3IR0 A1	3T17 E8	5771 D3	6P00 B8	7P58 C7	9E77 D2
1G50 F5	2A38 D7	2IE0 B8	2T02 D9	3052 B4	3762 C3	3I15 B7	3IR1 A1	3T18 E8	5A07 D7	6P01 B8	7P59 C7	9I00 A7
1P04 B8	2A47 D5	2IE3 A2	2T03 D8	3053 C5	3763 C3	3I16 B7	3IR2 A1	3T19 E8	5E00 E1	6P10 C7	7P60 C8	9I01 A7
1P05 C8	2A51 C5	2IE4 A2	2T04 A9	3054 B4	3764 C3	3I17 A7	3IR3 A1	3T20 E9	5E01 E2	6PB1 B7	7P61 C8	9I02 A7
1P07 C8	2A64 D6	2IE8 A2	2T05 A9	3055 B4	3767 C3	3I18 A7	3IR7 A2	3T22 E9	5E02 E2	6PB5 D8	7P62 C8	9I03 B7
1P08 B9	2A69 D6	2IE9 A2	2T06 A9	3056 B4	3768 C3	3I23 A8	3IR9 A1	3T23 E8	5E03 E2	6PB9 D7	7P63 D8	9I05 E8
1P09 C9	2A70 D6	2IF5 A2	2T07 D8	3057 B4	3769 C3	3I24 A8	3IS0 A2	3T24 E8	5E50 C2	6T01 A9	7PB5 B7	9I06 E8
1P50 C8	2A72 D6	2IF8 A2	2T09 A9	3061 B4	3770 C3	3I25 B8	3IS1 A2	3T25 E8	5E54 D1	6T02 D8	7T01 D9	9I09 A7
2003 B4	2A74 D6	2IF9 A2	2T10 D9	3062 B4	3771 A3	3I28 A4	3IS2 A8	3T26 E8	5E55 C2	6T03 A9	7T04 E9	9I11 A7
2010 C5	2A75 D6	2IG3 A2	2T11 D8	3064 C5	3772 A3	3I34 A5	3IS3 A1	3T27 E9	5E58 C2	6T04 D8	7T10 E8	9I15 A8
2017 B5	2A79 D6	2IG4 A1	2T12 A9	3067 B5	3773 A3	3I36 A5	3IS5 A2	3T28 D8	5I02 E8	6T05 A9	7T11 E9	9I17 A7
2019 A5	2A80 D6	2IG5 A2	2T13 A9	3069 C5	3774 C3	3I37 A4	3IS6 A1	3T29 E9	5I04 E8	6T06 D9	7T12 E9	9I29 A2
2022 C4	2A81 D6	2IG9 A2	2T14 D8	3070 C4	3775 C3	3I38 A5	3IT5 A1	3T30 E9	5I10 E6	6T07 D9	7T13 E9	9I31 A7
2023 B4	2A83 D6	2IH1 A1	2T15 A9	3072 B4	3776 A3	3I40 A6	3IT6 A2	3T31 E9	5I12 A2	6T08 A9	7T50 A9	9I32 A7
2024 B4	2A88 D6	2IH2 A2	2T16 D9	3079 C5	3777 C3	3I41 A6	3IU0 A2	3T32 E8	5I13 A2	6T10 E9	7U07 F4	9I33 A7
2026 B5	2A89 D6	2IH3 A5	2T17 A9	3080 C4	3779 C3	3I42 A1	3IV4 A2	3T33 E9	5I22 A1	6T11 E9	7U13 E4	9I34 A8
2033 B5	2A90 D6	2IH6 A2	2T18 D8	3081 B4	3780 C3	3I44 A1	3IV5 A2	3T51 E9	5I30 A2	6U02 E3	7V01 C2	9I48 A1
2036 B4	2A91 D5	2IH7 A2	2T19 D8	3082 B4	3781 C3	3I45 A1	3IW3 A6	3T52 E9	5I33 A2	6U10 E3	7V02 D2	9I50 A4
2038 B4	2A92 D6	2IH8 A2	2T20 D8	3083 B4	3784 C3	3I46 A1	3IW4 A5	3T53 E9	5I34 A1	6U11 E4	7V03 C1	9I51 A4
2040 B4	2A99 D5	2IH9 A2	2T21 A9	3085 B5	3792 A3	3I49 A1	3IW5 A5	3T54 E9	5I35 A2	6U12 F4	7Y01 F9	9I57 A8
2041 B5	2AA5 D6	2IJ0 A8	2T22 A9	3086 B5	3793 B4	3I54 A5	3IW9 A6	3T55 E9	5I36 A1	6U14 E4	7Y02 F8	9I58 A8
2052 A4	2AA9 D5	2IJ1 A7	2T30 E9	3087 B4	3794 A3	3I55 A5	3L02 B1	3T56 E9	5I37 A1	6U16 E4	7Z00 E5	9I68 A2
2053 A4	2AB0 D5	2IJ5 E5	2T31 E8	3088 C5	3795 A3	3I56 A4	3L03 C2	3T57 E9	5I38 A2	6V05 C2	7Z01 E5	9I69 A7
2054 A4	2AB3 D6	2IJ6 A1	2T32 E9	3092 C5	3797 B4	3I57 A4	3L06 C2	3T58 E9	5I39 A1	6Z00 E5	9001 C5	9I70 A7
2055 A4	2AB4 D6	2IJ7 A1	2T33 E8	3093 B5	3799 B4	3I61 A6	3L08 C2	3T59 E9	5I42 A2	7002 B5	9002 C5	9I73 A3
2056 A4	2AB8 D6	2IK1 A2	2T34 E8	3094 C5	3800 A3	3I62 A6	3L12 B1	3T60 E9	5I45 C6	7003 B5	9003 C5	9I74 A3
2057 A4	2AC1 E7	2IK6 C6	2T35 E8	3095 C5	3801 A3	3I73 A7	3P03 C8	3U12 F5	5P05 B9	7004 B5	9004 B5	9I75 A3
2060 A4	2AD0 E7	2IN8 A2	2T36 E9	3096 C5	3802 A3	3I74 A7	3P04 C8	3U24 E4	5P08 C8	7007 A5	9005 A4	9I78 B8
2061 A4	2AD3 E7	2IN9 A2	2T37 E8	3097 A4	3803 C3	3I76 A6	3P05 C8	3U27 E5	5P09 C8	7011 C5	9006 A4	9I81 A2
2063 C4	2AD4 E8	2IQ6 A8	2T38 E9	3098 A4	3804 C3	3I77 A6	3P06 C8	3U32 E3	5P10 C8	7012 B5	9007 A4	9I82 A6
2068 C5	2AD5 E7	2IQ8 A8	2T40 D9	3100 C5	3811 A3	3I79 A7	3P09 B8	3U33 E3	5P11 C9	7015 C5	9008 C4	9I88 A2
2072 C5	2AD6 E8	2IQ9 A8	2T41 D8	3101 C5	3812 A3	3I80 A8	3P11 B9	3U35 E4	5P50 C7	7016 C5	9009 C4	9I91 A2
2074 C5	2AE2 D7	2IR0 A3	2T42 E8	3102 B4	3814 A3	3I87 A7	3P12 B8	3U36 F5	5PA9 B7	7020 C4	9010 C5	9I92 A7
2300 B6	2AE3 D8	2IR1 A3	2T43 E8	3103 C4	3815 A3	3I88 A7	3P13 B8	3U37 F4	5T02 D9	7021 C4	9011 C5	9I93 A7
2302 B6	2AE5 E8	2IR2 A8	2T44 E8	3300 B6	3817 A3	3I98 A5	3P14 B8	3U38 F4	5T03 D8	7022 C4	9012 C4	9I94 A7
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2310 B6	2D04 D1	2IS1 A3	2T51 E8	3311 C6	3880 D3	3IA7 A4	3P31 C9	3U45 E3	5T15 E8	7309 C6	9025 C4	9IB2 A7
2311 B6	2D15 D1	2IS2 A3	2T52 E9	3312 C6	3881 D3	3IA8 A4	3P32 C9	3U54 E5	5T20 A9	7310 C6	9308 C6	9IB3 A2
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2319 C6	2E05 E2	2L26 C2	2U01 F3	3315 B6	3884 D3	3IB3 E8	3P37 C8	3U59 E3	5Y00 F1	7314 C6	9311 C6	9ID1 A2
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2321 C5	2E08 E2	2L31 C2	2U06 E4	3319 C6	3896 B2	3IBB E8	3P39 C9	3U61 E4	5Y02 F2	7316 C6	9313 C6	9ID3 A2
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2354 B6	2E35 D2	2P24 C8	2U37 E3	3350 C6	3A19 D6	3IE0 F6	3P56 C7	3Y00 E1	5Y22 F8	7713 D4	9418 A6	9P04 B8
2366 B6	2E48 E2	2P25 C9	2U38 E4	3351 C6	3A22 D5	3IE1 A8	3P57 C7	3Y01 E1	5Y23 D1	7714 D3	9420 A6	9P05 B9
2369 B6	2E49 D1	2P29 C8	2U39 E4	3352 C6	3A24 C5	3IE3 A3	3P60 C7	3Y02 E1	5Z07 F6	7719 C3	9421 C6	9P07 C9
2370 C6	2E51 D1	2P30 C8	2U40 E4	3354 C6	3A40 D6	3IE9 A2	3P62 C7	3Y03 E1	5Z08 F6	7720 B3	9422 B6	9P09 B9
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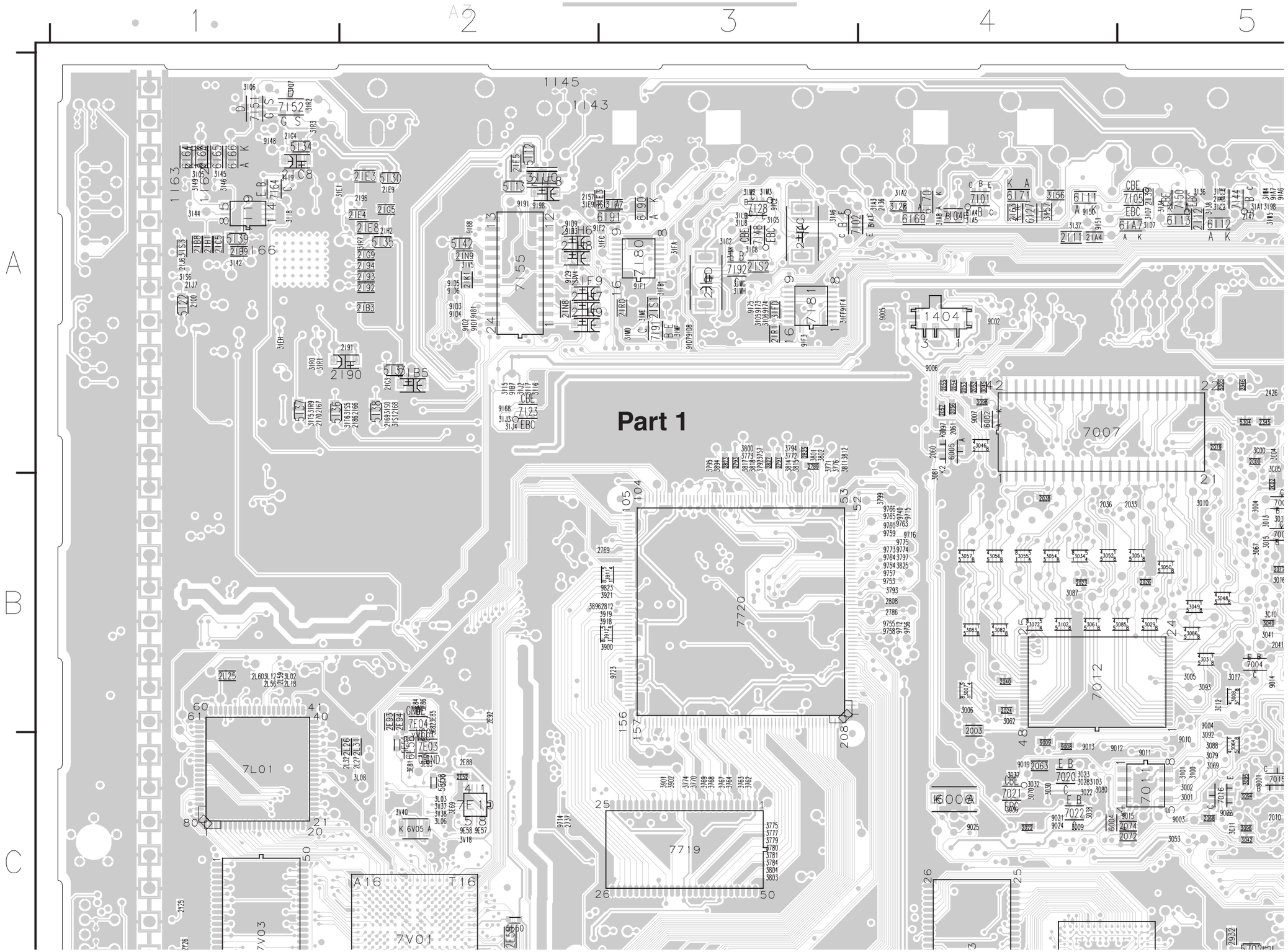
Layout Small Signal Panel (Bottom Side Part 1)



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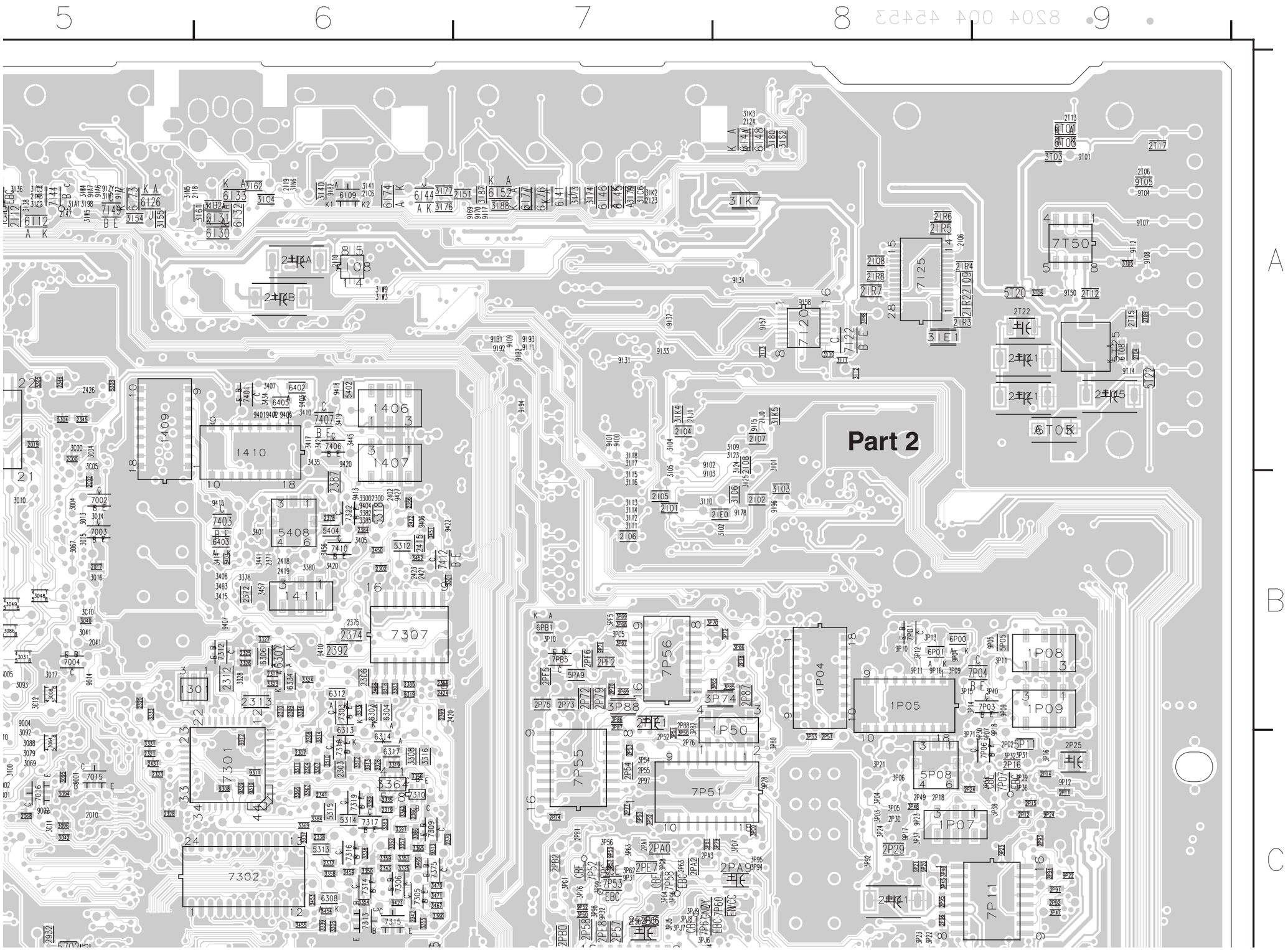

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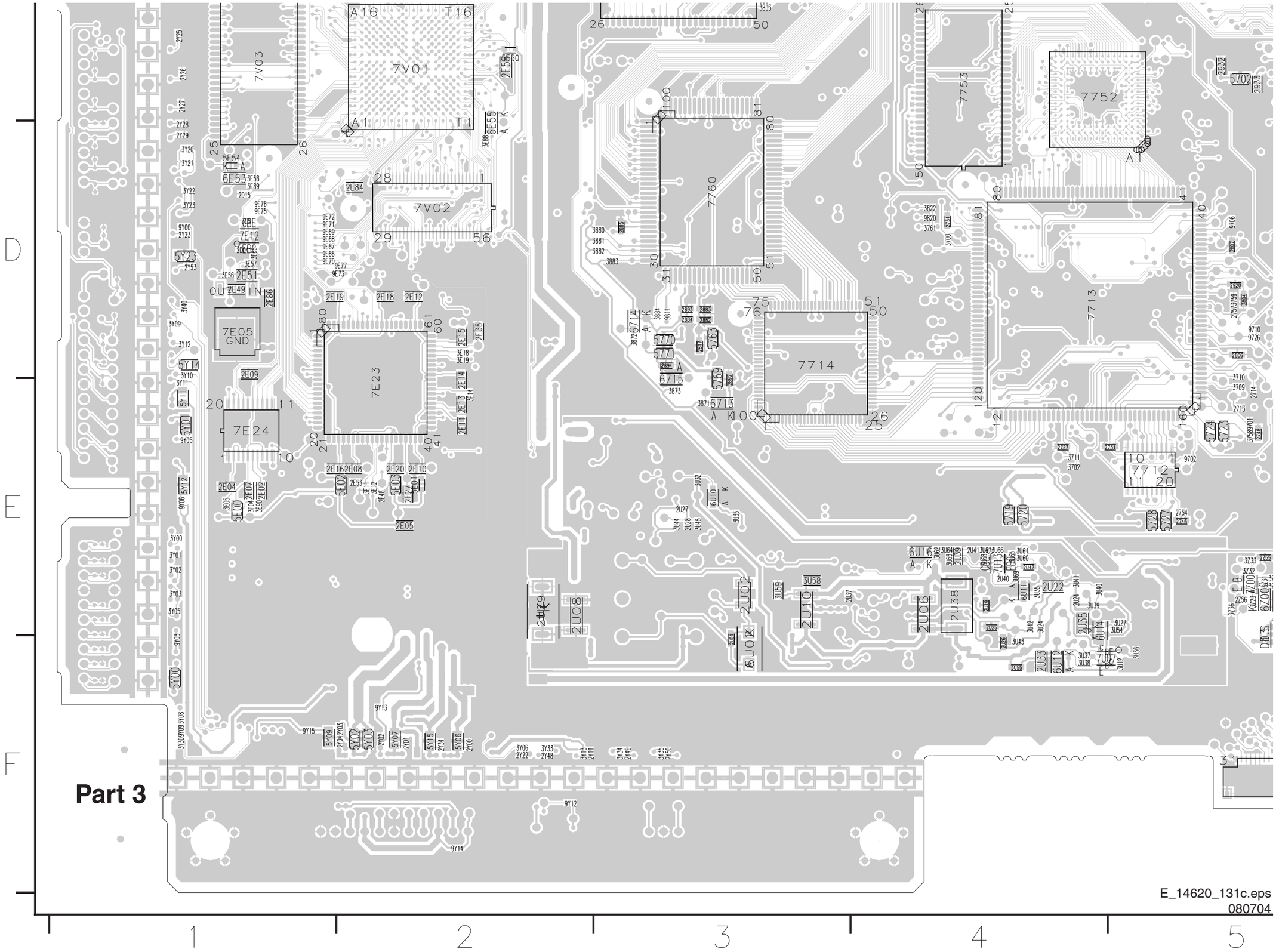

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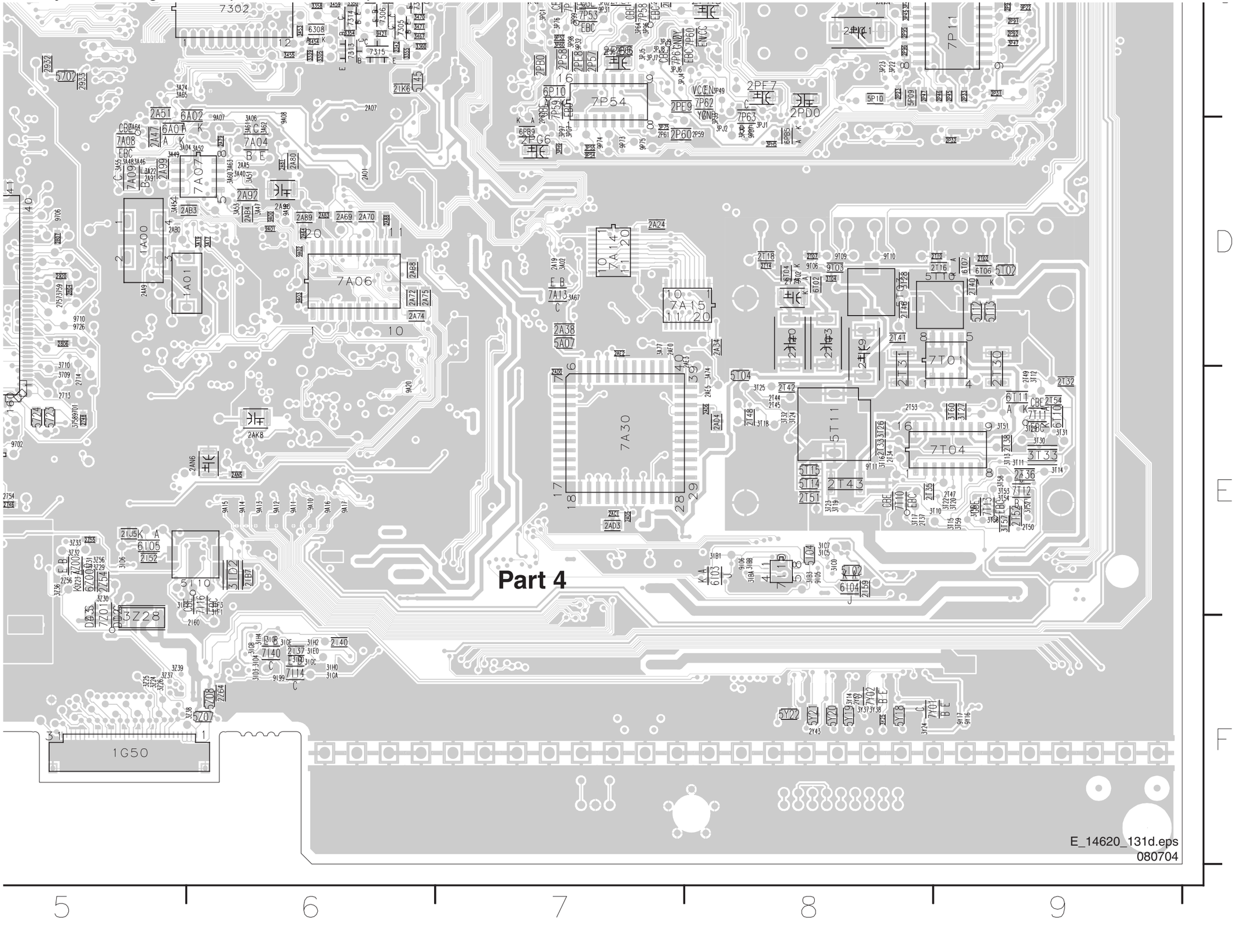
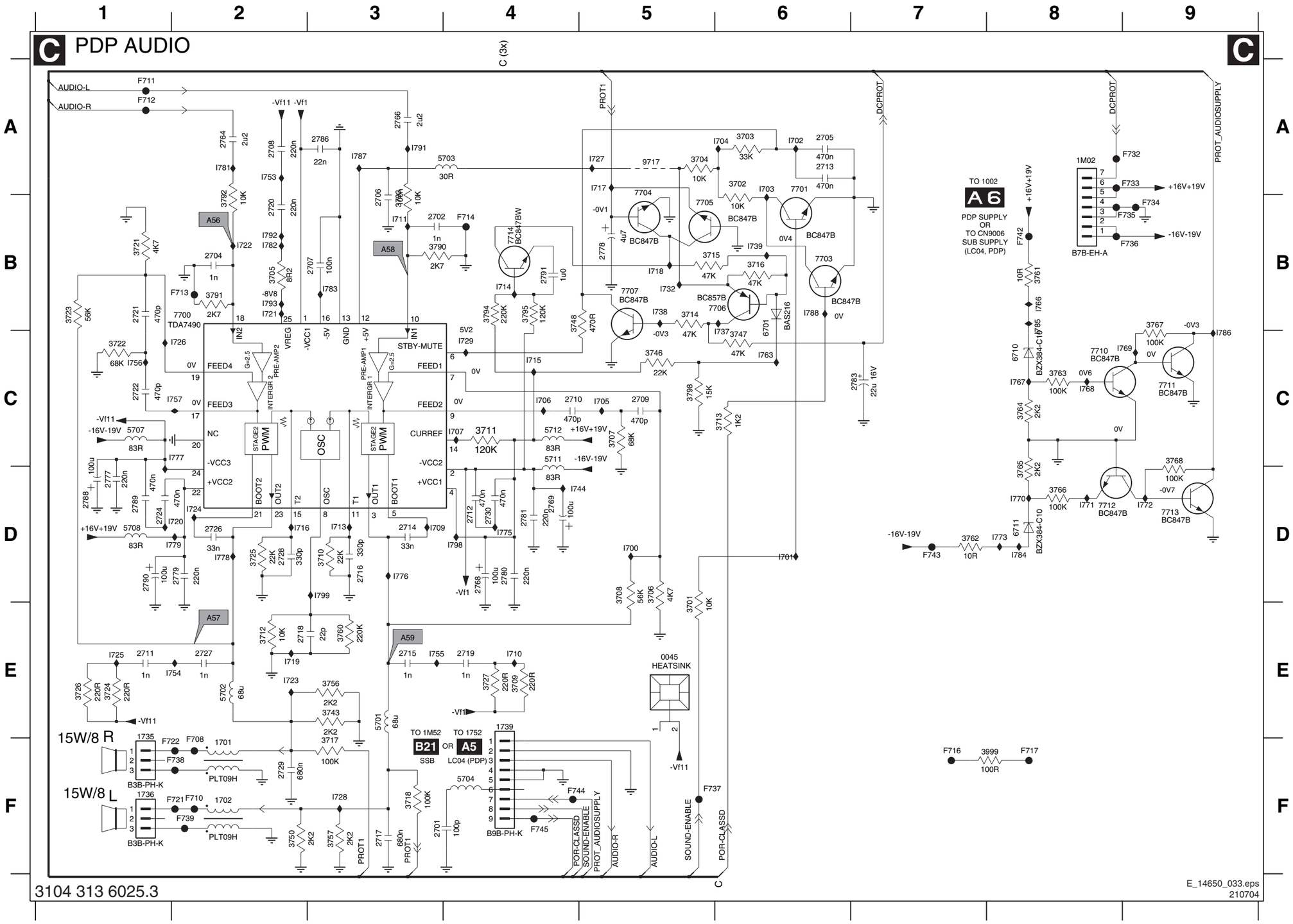


PDP Audio



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1739 E4	3768 C9	I732 B5
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2701 F3	3791 B2	I738 B5
2702 B3	3792 B2	I739 B6
2704 B2	3793 B3	I744 D4
2705 A6	3794 B4	I753 A2
2706 B3	3795 B4	I754 E2
2707 B3	3798 C5	I755 E3
2708 A2	3999 F8	I756 C1
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2710 C4	5702 E2	I763 C6
2711 E1	5703 A4	I766 B8
2712 D4	5704 F4	I767 C8
2713 A6	5707 C1	I768 C8
2714 D3	5708 D1	I769 C9
2715 E3	5711 C4	I770 D8
2716 D3	5712 C4	I771 D8
2717 F3	6701 B6	I772 D9
2718 E2	6710 C8	I773 D8
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2720 B2	7700 B2	I776 D3
2721 B1	7701 A6	I777 C2
2722 C1	7703 B6	I778 D2
2724 D1	7704 A5	I779 D2
2726 D2	7705 B5	I781 A2
2727 E2	7706 B6	I782 B2
2728 D2	7707 B5	I783 B3
2729 F2	7710 C8	I784 D8
2730 D4	7711 C9	I785 B8
2764 A2	7712 D8	I786 C9
2766 A3	7713 D9	I787 A3
2768 D4	7714 B4	I788 B6
2769 D4	9717 A5	I791 A3
2777 D1	F708 E2	I792 B2
2778 B5	F710 F2	I793 B2
2779 D2	F711 A1	I798 D4
2780 D4	F712 A1	I799 D3
2781 D4	F713 B2	
2783 C7	F714 B4	
2786 A3	F716 F7	
2788 D1	F717 F8	
2789 D1	F721 F2	
2790 D1	F722 F1	
2791 B4	F732 A9	
3701 E5	F733 A9	
3702 A6	F734 B9	
3703 A6	F735 B9	
3704 A5	F736 B9	
3705 B2	F737 F5	
3706 D5	F738 F2	
3707 C5	F739 F2	
3708 D5	F742 B8	
3709 E4	F743 D7	
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3711 C4	F745 F4	
3712 E2	I700 D5	
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3714 B5	I702 A6	
3715 B5	I703 A6	
3716 B6	I704 A6	
3717 E3	I705 C5	
3718 F3	I706 C4	
3721 B1	I707 C4	
3722 C1	I709 D3	
3723 B1	I710 E4	
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3725 D2	I712 B4	
3726 E1	I713 D3	
3727 E4	I714 B4	
3743 E3	I715 C4	
3746 C5	I716 D2	
3747 C6	I717 A5	
3748 B4	I718 B5	
3750 F2	I719 E2	
3756 E3	I720 D2	
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3762 D7	I724 D2	

Layout PDP Audio (Top Side)

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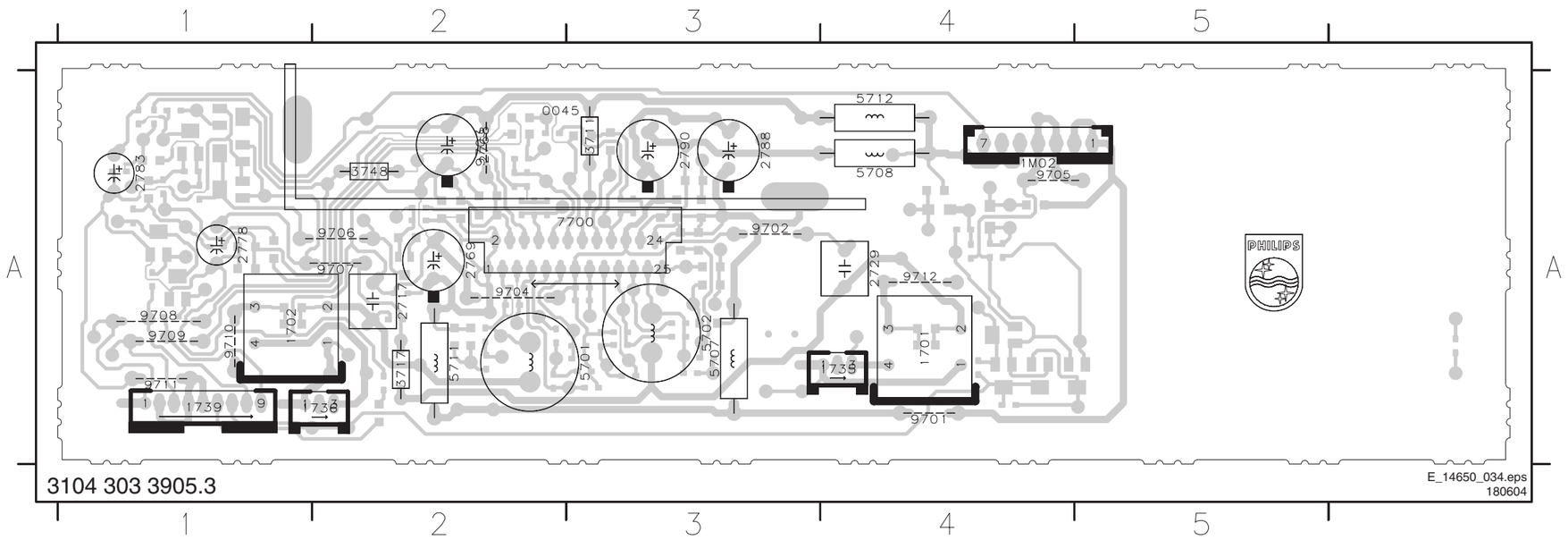

Layout PDP Audio (Bottom Side)

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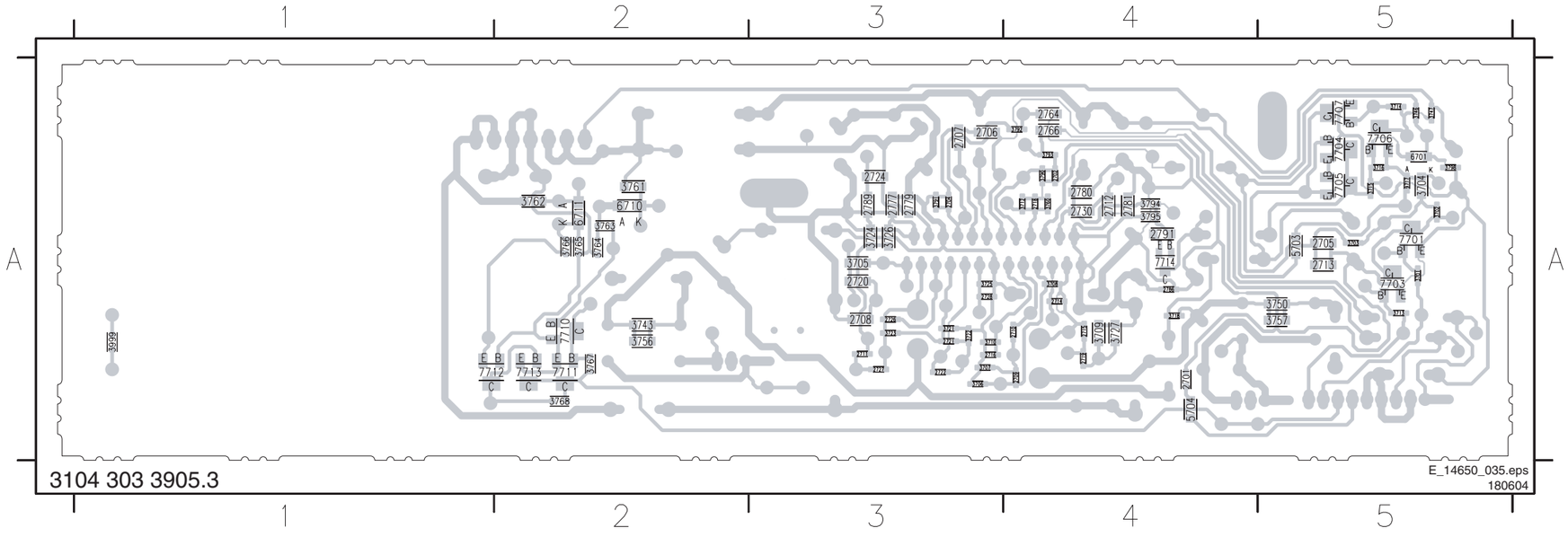
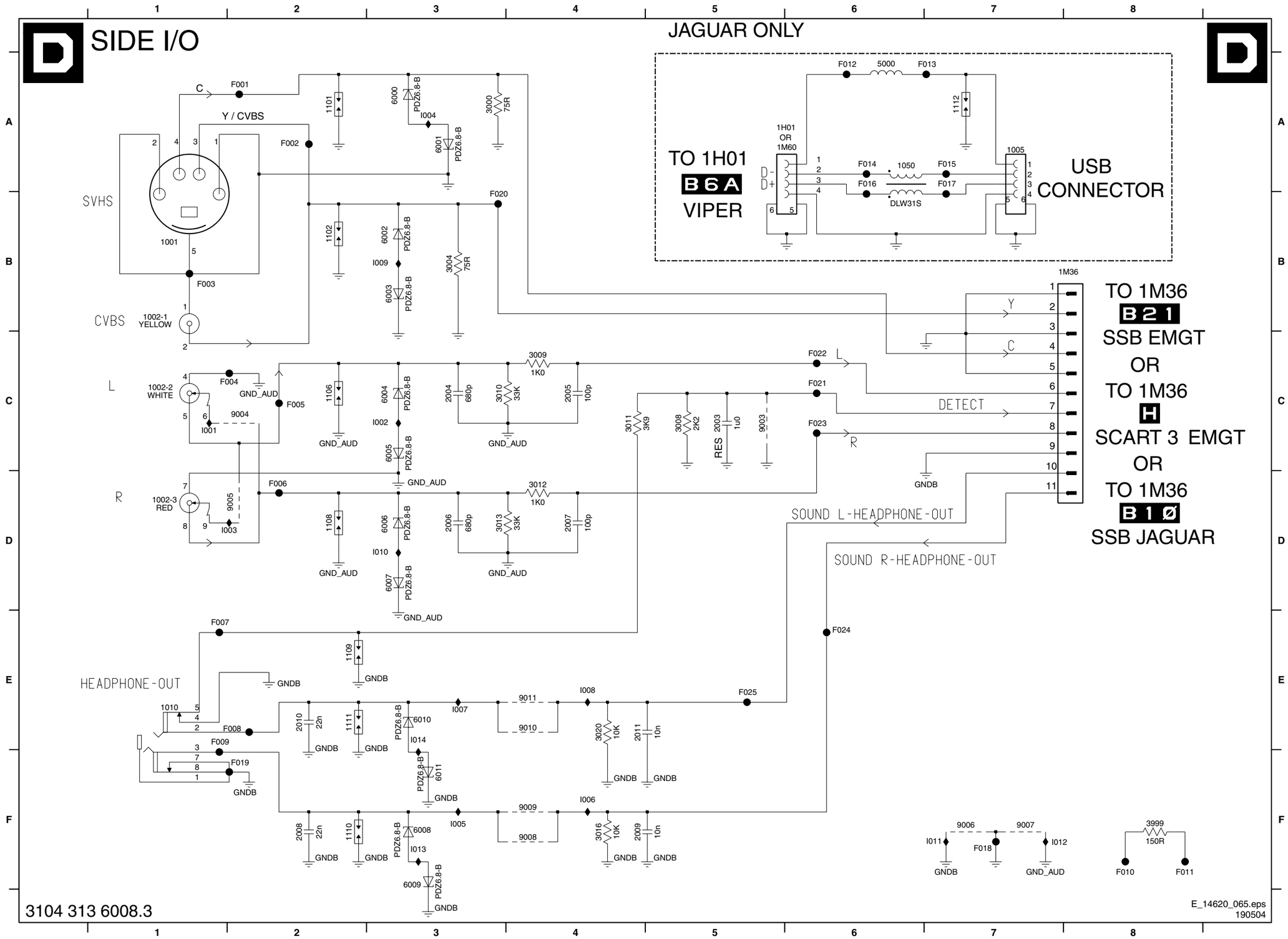


Side I/O Panel



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1002-2	C1	F005	C2
1002-3	D1	F006	D2
1005	A7	F007	E1
1010	E1	F008	E2
1050	A6	F009	E1
1101	A2	F010	F8
1102	B2	F011	F8
1106	C2	F012	A6
1108	D2	F013	A7
1109	E2	F014	A6
1110	F2	F015	A7
1111	E2	F016	A6
1112	A7	F017	A7
1H01	A6	F018	F7
1M36	B8	F019	F2
2003	C5	F020	B3
2004	C3	F021	C6
2005	C4	F022	C6
2006	D3	F023	C6
2007	D4	F024	E6
2008	F2	F025	E5
2009	F4	I001	C1
2010	E2	I002	C3
2011	E4	I003	D2
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3004	B3	I005	F3
3008	C5	I006	F4
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3011	C4	I009	B3
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3013	D3	I011	F7
3016	F4	I012	F7
3020	E4	I013	F3
3999	F8	I014	E3
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6000	A3		
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6002	B3		
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9003	C5		
9004	C2		
9005	D1		
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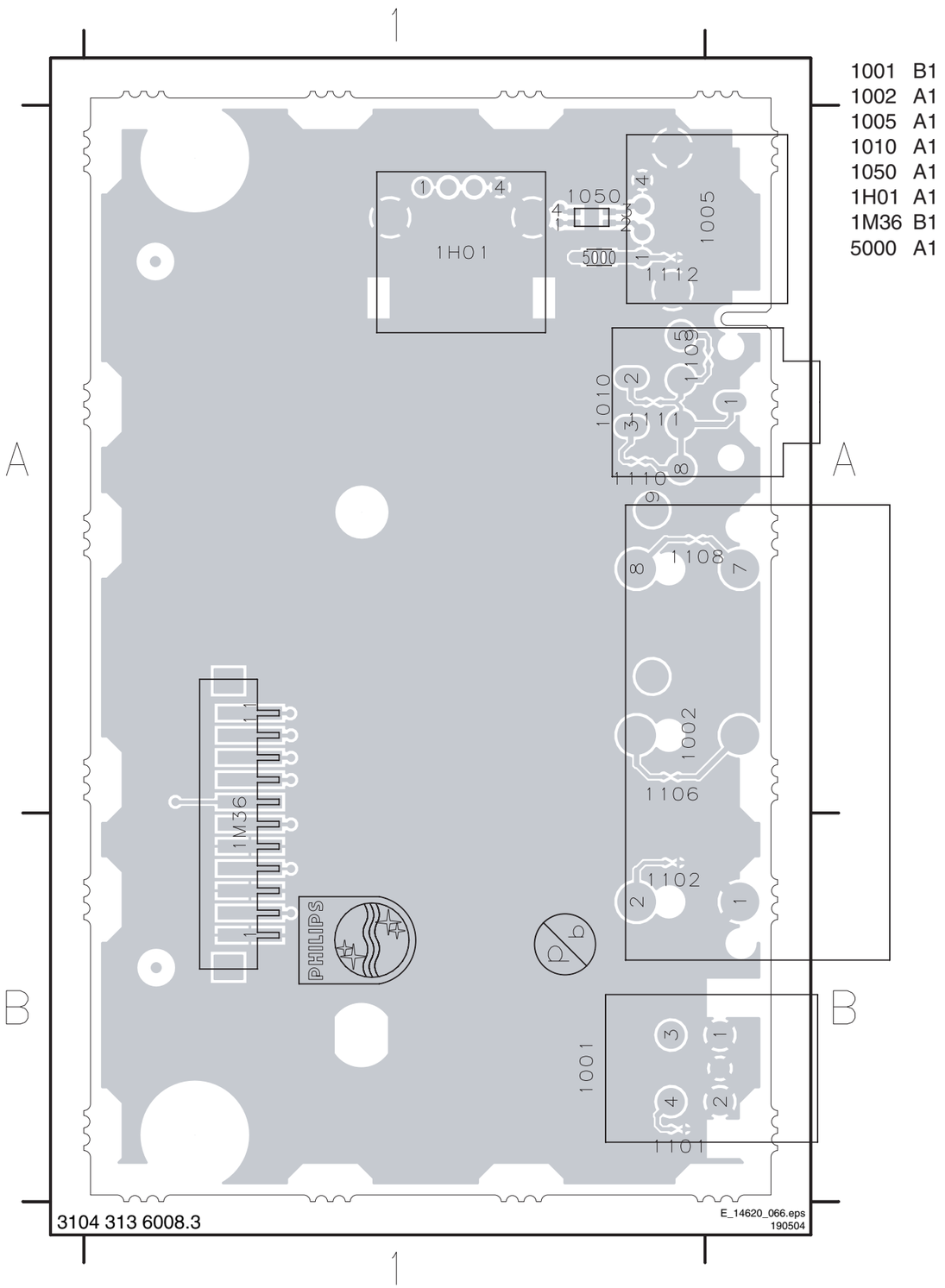
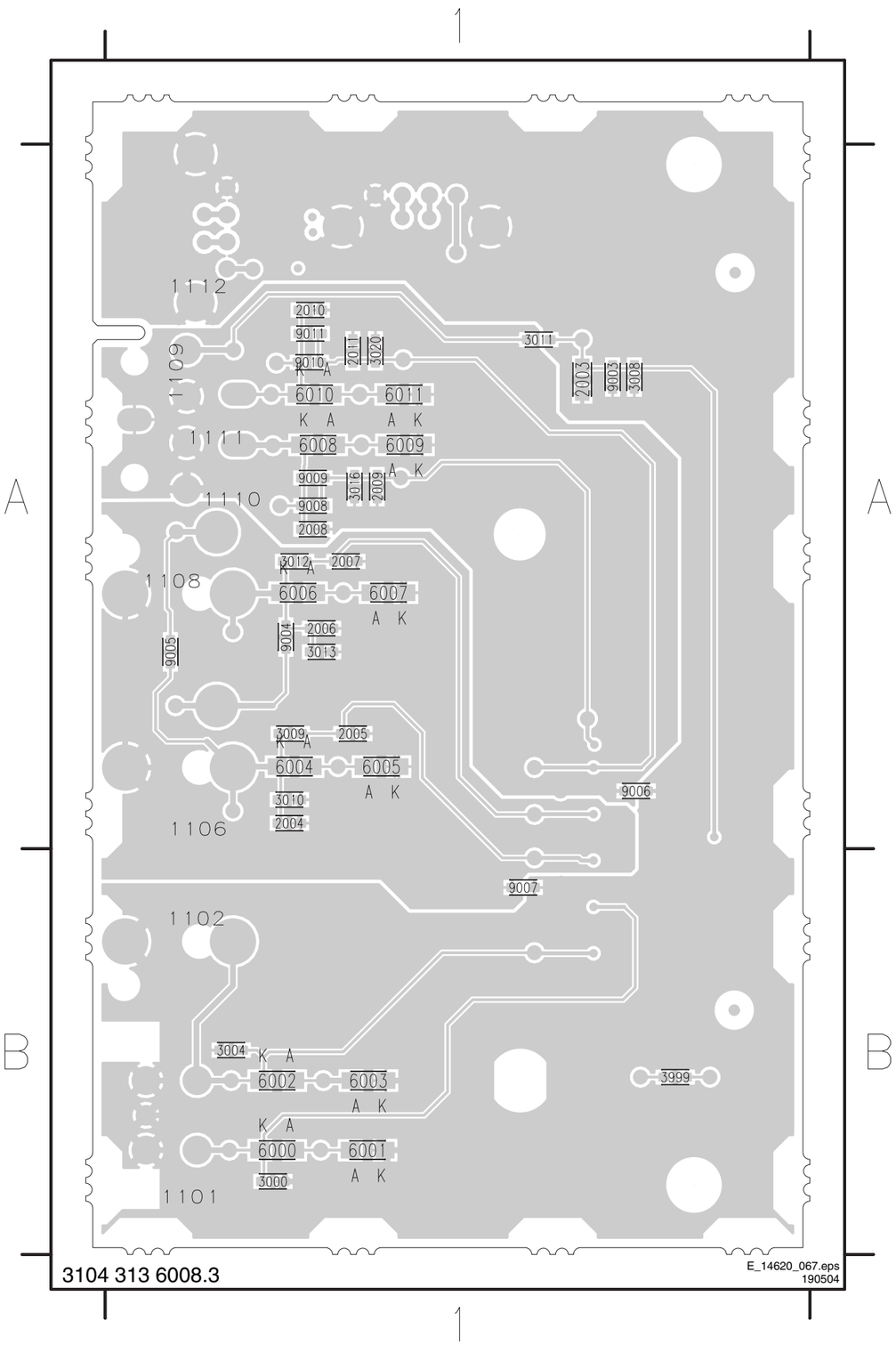
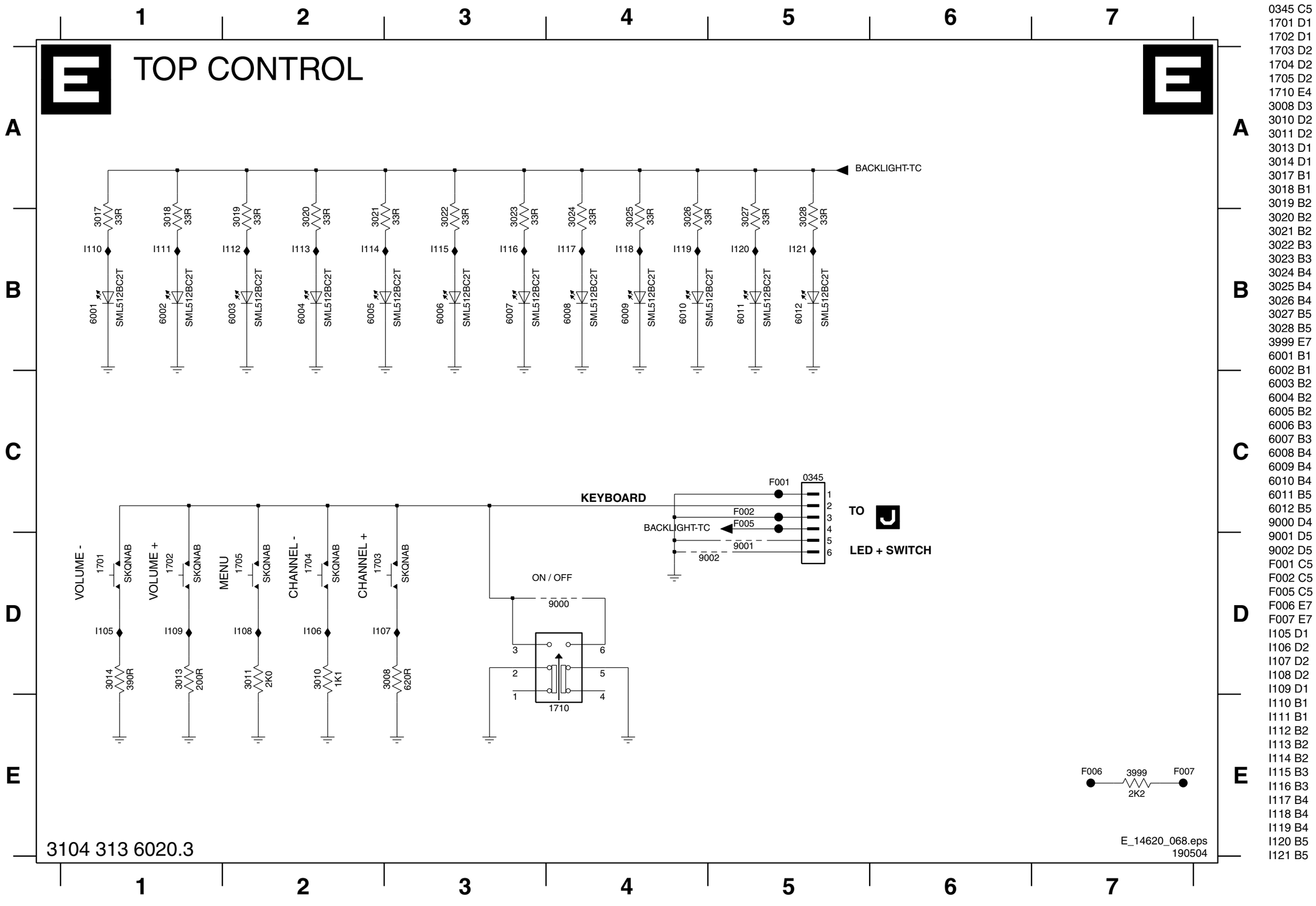
Layout Side I/O Panel (Top Side)



Layout Side I/O Panel (Bottom Side)



Top Control Panel



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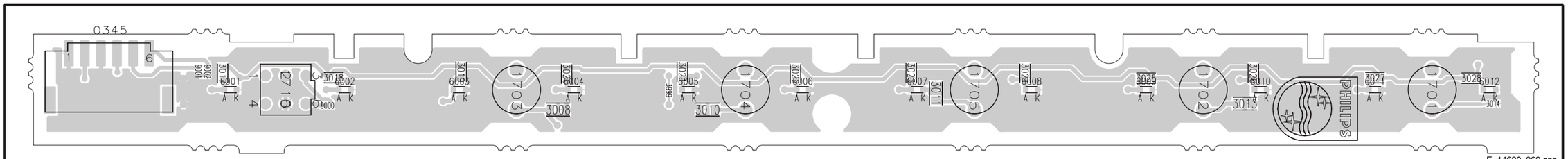
I118 B4
I119 B4
I120 B5
I121 B5

Layout Top Control Panel (Top Side)

0345 1702 1704 1710 3010 3013 3017 3019 3021 3023 3025 3027 3999 6002 6004 6006 6008 6010 6012 9001
1701 1703 1705 3008 3011 3014 3018 3020 3022 3024 3026 3028 6001 6003 6005 6007 6009 6011 9000 9002



3104 313 6020.3

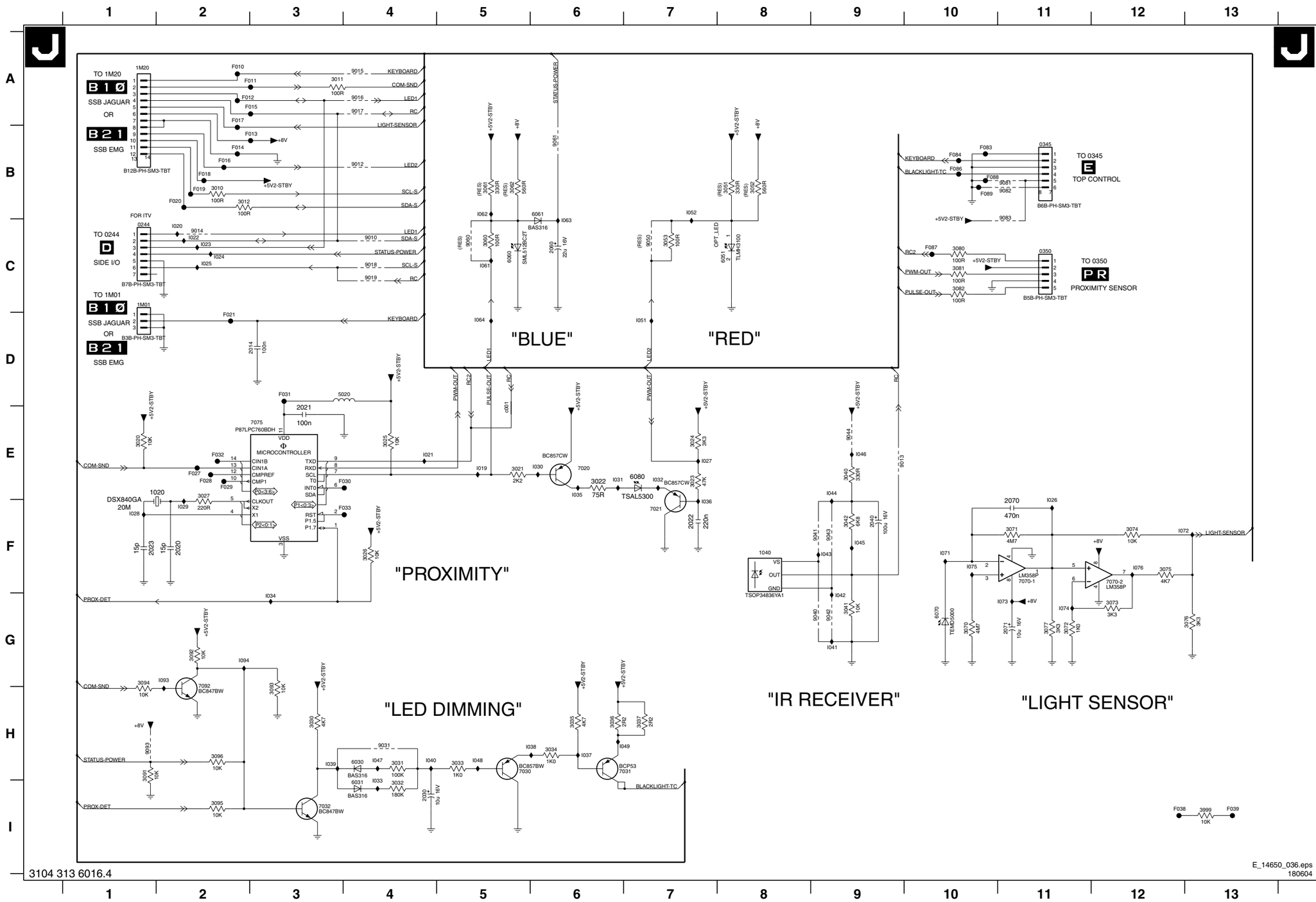
E_14620_069.eps
180604

Layout Top Control Panel (Bottom Side)

3104 313 6020.3

E_14620_122.eps
180604

LED and Switch Panel



3104 313 6016.4

0244 C1	F017 A2	I019 E5
0345 B11	F018 B2	I020 C2
0350 C11	F019 B2	I021 E4
1020 E2	F020 B2	I022 C2
1040 F8	F021 D2	I023 C2
1M01 C1	F027 E2	I024 C2
1M20 A1	F028 E2	I025 C2
2014 D3	F029 E2	I026 F11
2020 F2	F030 E4	I027 E7
2021 E3	F031 D3	I028 F1
2022 F7	F032 E2	I029 F2
2023 F1	F033 F4	I030 E6
2030 I4	F038 I12	I031 E6
2040 F9	F039 I13	I032 I3
2060 C6	F083 B10	I033 I4
2070 F11	F084 B10	I034 G3
2071 G11	F086 B10	I035 E6
3010 B2	F087 C10	I036 G3
3011 A3	F088 B10	I037 H6
3012 B2	F089 B10	I038 H6
3020 E1	I019 E5	I039 H3
3021 E5	I020 C2	I040 H4
3022 E6	I021 E4	I041 G9
3023 E7	I022 C2	I042 G9
3024 E7	I023 C2	I043 F9
3025 E4	I024 C2	I044 E9
3026 F4	I025 C2	I045 F9
3027 E2	I026 F11	I046 E9
3030 H3	I027 E7	I047 H4
3031 H4	I028 F1	I048 H5
3032 I4	I029 F2	I049 H7
3033 H5	I030 E6	I051 D7
3034 H6	I031 E6	I052 B7
3035 H6	I032 E7	I061 C5
3036 H6	I033 I4	I062 B5
3037 H7	I034 G3	I063 C6
3040 E9	I035 E6	I064 D5
3041 G9	I036 E6	I071 F10
3042 F9	I037 H6	I072 F12
3051 B8	I038 H6	I073 G11
3052 B8	I039 H3	I074 G11
3053 C7	I040 H4	I075 F10
3060 C5	I041 G9	I076 F12
3061 B5	I042 G9	I093 G2
3062 B5	I043 F9	I094 G2
3070 G10	I044 E9	c001 E5
3071 F11	I045 F9	
3072 G11	I046 E9	
3073 G12	I047 H4	
3074 F12	I048 H5	
3075 F12	I049 H7	
3076 G13	I051 D7	
3077 G11	I052 B7	
3080 C10	I061 C5	
3081 C10	I062 B5	
3082 C10	I063 C6	
3091 H1	I064 D5	
3092 G2	I071 F10	
3093 H3	I072 F12	
3094 G1	I073 G11	
3095 I2	I074 G11	
3096 H2	I075 F10	
3999 I13	I076 F12	
5020 D4	I093 G2	
6030 H4	I094 G2	
6031 I4	c001 E5	
6051 C8		
6060 C5		
6061 B6		
6070 G10		
6080 E7		
7020 E6		
7021 F7		
7030 H5		
7031 H6		
7032 I3		
7070-1 F11		
7070-2 F12		
7075 E3		
7092 H2		
9010 C4		
9012 B4		
9013 E9		
9014 C2		
9015 A4		
9016 A4		
9017 A4		
9018 C4		
9019 C4		
9031 H4		
9040 G9		
9041 F9		
9042 G9		
9043 F9		
9044 E9		
9050 C7		
9060 C5		
9061 B6		
9081 B11		
9082 B11		
9083 C11		
9093 H1		
F010 A2		
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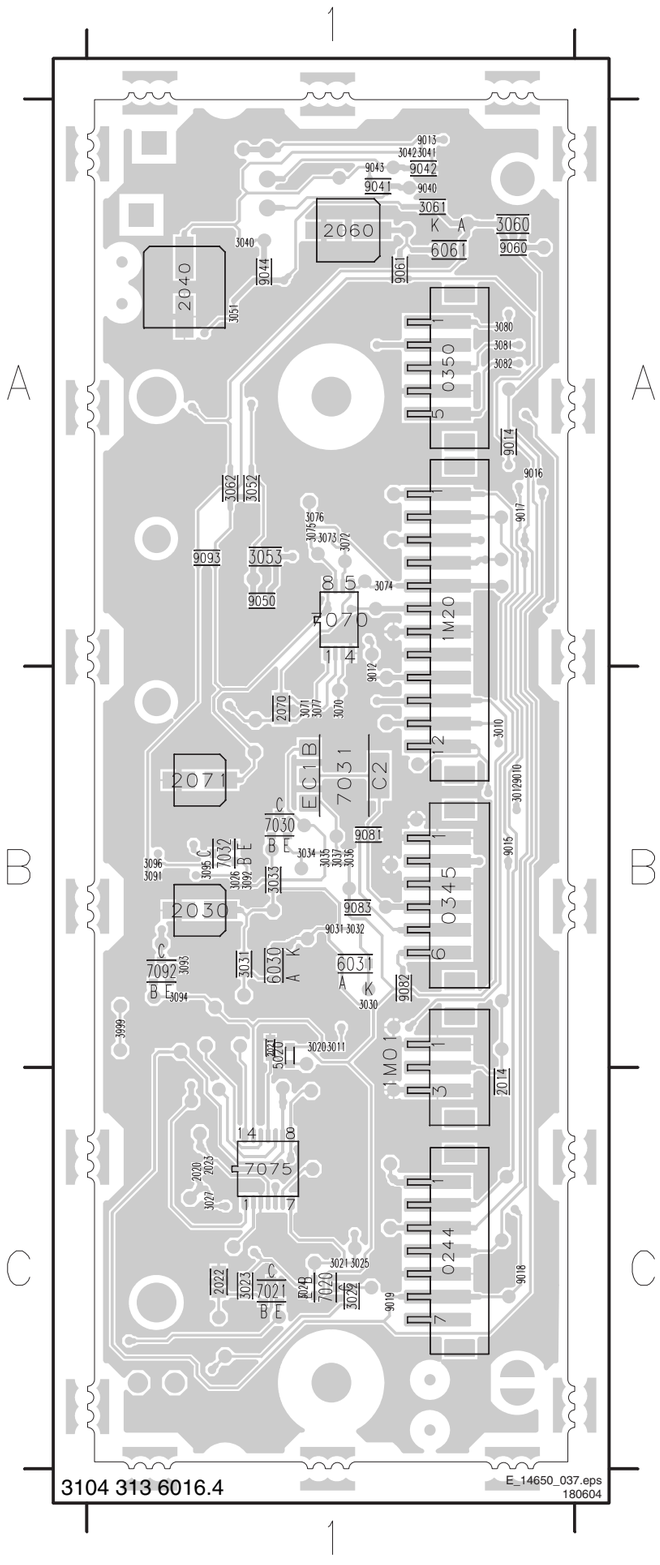
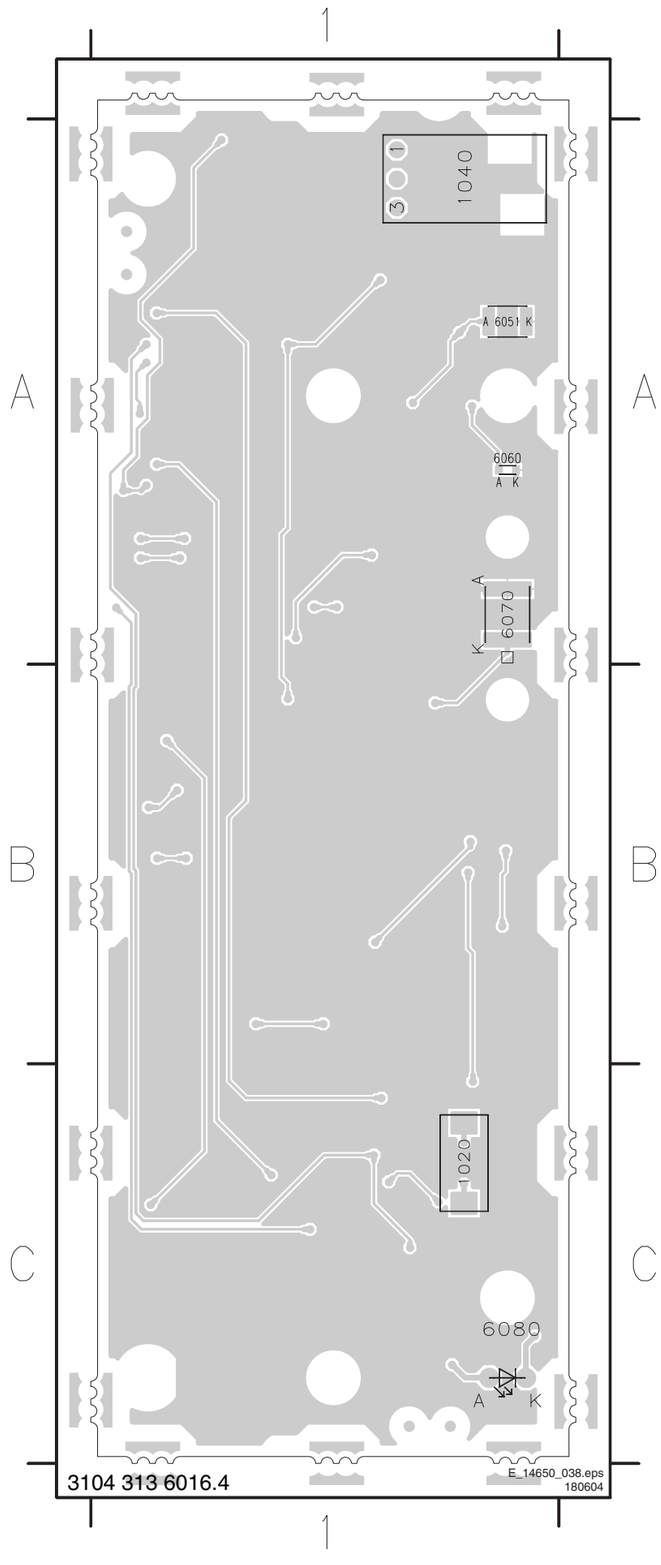
F012 A2		
F013 B3		
F014 B2		
F015 A3		
F016 B2		

Layout LED and Switch Panel (Top Side)



0244 C1
0345 B1
0350 A1
1040 A1
1M01 B1
1M20 A1
2014 C1
2020 C1
2021 B1
2022 C1
2023 C1
2030 B1
2040 A1
2060 A1
2070 B1
2071 B1
3010 B1
3011 B1
3012 B1
3020 B1
3021 C1
3022 C1
3023 C1
3024 C1
3025 C1
3026 B1
3027 C1
3030 B1
3031 B1
3032 B1
3033 B1
3034 B1
3035 B1
3036 B1
3037 B1
3040 A1
3041 A1
3042 A1
3051 A1
3052 A1
3053 A1
3060 A1
3061 A1
3062 A1
3070 B1
3071 B1
3072 A1
3073 A1
3074 A1
3075 A1
3076 A1
3077 B1
3080 A1
3081 A1
3082 A1
3091 B1
3092 B1
3093 B1
3094 B1
3095 B1
3096 B1
3999 B1
5020 B1
6030 B1
6031 B1
6061 A1
6080 C1
7020 C1
7021 C1
7030 B1
7031 B1
7032 B1
7070 A1
7075 C1
7092 B1
9010 B1
9012 B1
9013 A1
9014 A1
9015 B1
9016 A1
9017 A1
9018 C1
9019 C1
9031 B1
9040 A1
9041 A1
9042 A1
9043 A1
9044 A1
9050 A1
9060 A1
9061 A1
9081 B1
9082 B1
9083 B1
9093 A1

Layout LED and Switch Panel (Bottom Side)



1020 C1
1040 A1
6051 A1
6060 A1
6070 A1
6080 C1

Personal Notes:

E_06532_013.eps
131004

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:
- Power supply voltage (depends on region):
  - EU: 230 V_{AC} / 50 Hz (± 10 %).
  - US: 120 V_{AC} / 60 Hz (± 10 %).
  - AP: 120 V_{AC} or 230 V_{AC} / 50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 10 to 15 minutes.
- Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.1.2 Initial Settings

Perform all electrical adjustments with the following initial settings (via the "Active Control" button on the RC):
1. To avoid the working of the lightsensor, set "Active Control" to "Off".
2. Set "Smart Picture" to "Natural".
3. Set "Active Display" to "Off"

8.1.3 Alignment Sequence

- First, set the correct options:
  - In SAM, select SERVICE OPTIONS -> OPT. NO,
  - Fill in the option settings according to the set sticker (see also paragraph "Option Settings"),
  - Select STORE OPTIONS and push "OK" on the remote control,
  - After storing, the set must be restarted!
- Warming up (>10 minutes).
- White-D alignment.

8.2 Hardware Alignments

No hardware alignments are necessary.

8.3 Software Alignments

Put the set in SAM mode (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. Select ALIGNMENTS and go to one of the sub menus. The alignments are explained below.

Notes:
- All changes must be stored manually.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.

8.3.1 GENERAL

For the next alignments, supply the following test signals via a video generator to the RF input:
- **EU/AP-PAL** models: a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC** models: an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

LUMA GAIN
Fixed setting of "1".

DELTA LUMA GAIN FOR AUX (only when a 2nd Tuner is present)
Fixed setting of "0 dB".

IF AFC
Alignment procedure:
1. During the IF AFC-parameter adjustment, one can see OSD feedback on the screen.
2. The OSD feedback can give 4 kinds of messages:
3. The first item ("IN/OUT") informs you whether you are in or out of the AFC-window.
4. The second item ("HIGH/LOW") informs you whether the AFC-frequency is too high or too low.

Table 8-1 AFC

AFC-window	AFC-frequency vs. reference
Out	High
In	High
[In]	[Low]
Out	Low

1. Adjust the IF AFC parameter until the **first** value is within the AFC window (= IN).
2. Next, adjust the IF AFC parameter until the **second** value is LOW.

TUNER AGC
Measure the DC voltage on pin 1 of the (main) Tuner. You can adjust this voltage by adjusting the TUNER AGC item in the SAM menu. Alignment is correct when the DC voltage is just below 3.5 V.

IF AFC TUNER 2 (only when a 2nd Tuner is present)
Use the same procedure as described above (under IF AFC) with the set switched to the DW source.

TUNER AGC TUNER 2 (only when a 2nd Tuner is present)
Use the same procedure as described above (under TUNER AGC) with the set switched to the DW source. Measure on pin 1 of the DW Tuner.

BLEND INTENSITY
Use this alignment when you replace the microcontroller, NVM, or the EBILD. It aligns the level of transparency of the menu-picture blended into the main-picture. Fixed setting of "16".

8.3.2 2FH ADC ALIGNMENT

Only necessary to align, when the A/D convertor or NVM is replaced. Use the default values as mentioned in the table.

Table 8-2 "2fH ADC alignment"

Menu item	Value
Red Gain RGB	106
Blue Gain RGB	112
Green Gain RGB	133
Red Offset RGB	40
Blue Offset RGB	41
Green Offset RGB	43
Red Gain YPbPr *	+ 10
Blue Gain YPbPr *	- 1
Green Gain YPbPr *	+ 12
Red Offset YPbPr *	+ 18
Blue Offset YPbPr *	+ 1
Green Offset YPbPr *	+ 18
* = Only for sets with YPbPr input: this is the delta w.r.t. the RGB values.	

8.3.3 WHITE D ALIGNMENT

- Set ACTIVE CONTROL to "Off".
- In the TV -> PICTURE user menu set:
  - DYNAMIC CONTRAST to "Off".
  - color ENHANCEMENT to "Off".
  - color to "0".
  - CONTRAST to "100".
  - BRIGHTNESS to "43".
- Go to the SAM and select ALIGNMENTS -> WHITE POINT.

Method 1 (with color analyser):

- Use a 100% white screen as input signal and set the following values:
  - COLOR TEMPERATURE: "Tint to be aligned".
  - WHITEPOINTRED: "127".
  - WHITEPOINTGREEN: "127".
  - WHITEPOINTBLUE: "127".
  - RED BL OFFSET: "7"
  - GREEN BL OFFSET: "7".
- Measure with a calibrated (phosphor- independent) color analyser (e.g. Minolta CA-210) in the centre of the screen. This measurement needs to be done in a dark environment.
- **Cut off alignment:** Adjust, by means of changing the value of one or both OFFSET's, to the correct x,y coordinates for the tint "NORMAL" (see table "White D alignment values"). Tolerance: dx,dy: $\pm$ 0.004.
- **White point alignment:** Adjust by means of decreasing the value of one or two whiteprints, the correct x,y coordinates (see table "White D alignment values"). Tolerance: dx,dy: $\pm$ 0.004.
- Repeat this step for the other Color Temperatures that need to be aligned.
- When finished press "Store" to store the aligned values to the NVM.

Table 8-3 White D alignment values

color Temp. (K)	Cool (11000)	Normal (9300)	Warm (6500)
x	0.275	0.286	0.315
y	0.291	0.301	0.335

Method 2 (without color analyser):

If you do not have a color analyser, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

1. Select a color TEMPERATURE (e.g. COOL, NORMAL, or WARM).
2. Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.
3. When finished press "Store" to store the aligned values to the NVM.

Table 8-4 Tint settings

	Cool		Normal		Warm	
	42"	50"	42"	50"	42"	50"
R	127	127	127	127	127	127
G	122	125	119	121	113	114
B	118	118	111	109	94	87

8.3.4 LUM. DEL.

With this Luminance Delay alignment, you place the luminance information exactly on the chrominance information (brightness is pushed onto the color). Use a color bar / grey scale pattern as test signal.

- **LUM. DELAY PAL BG:** Apply a PAL BG color bar / grey scale pattern as a test signal. Adjust this parameter until the transients of the color part and black and white part of the test pattern are at the same position.
  Default value is "**7**".
- **LUM. DELAY PAL I:** Apply a PAL I color bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the color part and black and white part of the test pattern are at the same position.
  Default value is "**9**".
- **LUM. DELAY SECAM:** Apply a SECAM color bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the color part and black and white part of the test pattern are at the same position.
  Default value is "**9**".
- **LUM. DELAY BYPASS:** apply a NTSC color bar/greyscale pattern as a test signal. Adjust this value until the transients of the color and black and white part of the test area are at the same position.
  Default value is "**6**".

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

Notes:

- After changing the option(s), save them with the STORE command.
- The new option setting is only active after the TV is switched "off" and "on" again with the Mains switch (the EAROM is then read again).

8.4.2 DEALER OPTIONS

Table 8-5 Dealer options

Menu name	Subjects	Options	Description
Personal Options	Picture (Blue) Mute	Yes	Picture (blue) mute active in case no picture detected
		No	Noise in case of no picture detected
	Virgin Mode	Yes	TV starts up (once) with language selection menu after mains switch "on" for the first time (virgin mode)
		No	TV does not starts up (once) with language selection menu after mains switch "on" for the first time (virgin mode)
	AmbiLight Demo	Yes	AmbiLight demo via "MENU" button enabled
		No	AmbiLight demo via "MENU" button disabled

8.4.3 SERVICE OPTIONS

Select the sub menu's to set the initialisation codes (options) of the set via text menus.

Table 8-6 Service options

Menu-item	Subjects	Options	Description
Dual Screen	PIP/Dual Screen	Yes / No	Feature present / not present
	DS/PIP Tuner	Yes / No	Feature present / not present (only selectable if Dual Screen option is "on")
Display	Screen	Value "000"	42 inch PDP SDI
		Value "001"	50 inch PDP SDI
		Value "002"	42 inch PDP FHP
		Value "003"	30 inch LCD LPL
		Value "004"	37 inch LCD LPL
		Value "005"	42 inch LCD LPL
		Value "006"	32 inch LCD Sharp
		Value "007"	42 inch PDP SDI VGA
		Value "008"	37 inch PDP FHP
Video Repro	Featurebox type	1050i/1250i	HD input
		Eagle 1B	"Eagle version 1B" present (Pixel Plus 1)
		Eagle 1C	"Eagle version 1C" present (Pixel Plus 2)
	Impr. Noise Red.	Yes / No	Only selectable when Columbus is present
	PixelPlus Version	1 / 2	1= Standard PP, 2= Improved PP(only selectable with Eagle 1C)
	Lightsensor	Yes / No	Feature present / not present
	3D Combfilter	Yes / No	Only selectable when Columbus is present
	Digital Option	Yes / No	Commercial feature (not applicable yet)
	720p	Yes / No	Enable for high resolution displays
Audio Repro	Acoustic System	FTV Top	Cabinet design (xxPF9986 and xxPF9996 with NXT)
		Soft Wrap	Cabinet design (xxPF9956 and xxPF9966 standard)
		Wrap	Cabinet design (xxPF9956 and xxPF9966 standard)
		FTV2.3	Cabinet design (for future)
	AVL	On / Off	Enable / disable Automatic Volume Limiter
Miscellaneous	AmbiLight	Yes / No	Rear lighting feature present / not present
	Tuner type	UV1316 / TEDE9	Model with Philips tuner / Alps tuner
	Hotel Mode	Yes / No	Hotel Mode On / Off (only applicable for Institutional TV models)
	Intelligent Lights	Yes / No	Proximity sensor present / not present
Option no.	Group 1		Group 1 option code overview (see set sticker)
	Group 2		Group 2 option code overview (see set sticker)
	Store Options		Activate to store the changed option settings

8.4.4 OPT. NO. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).

Table 8-7 Option number overview

Model Number	12 NC	Options Group 1	Options Group 2
32PF9966/37	8670 000 20641	62692 08224 33040 04107	00016 01585 16512 49602
32PF9966/69	8670 000 20643	62948 08224 33104 04107	00016 01553 16512 49601
32PF9966/93	8670 000 20644	62948 08224 33104 04111	00016 01553 16512 49601
32PF9986/12	8670 000 20663	62948 40992 49488 04097	04118 01537 16480 49632
32PF9996/37	8670 000 20666	62948 08224 33040 04107	00016 01585 16512 49632
37PF9986/12	8670 000 20667	62948 40992 49488 04097	04118 01025 16480 03040
37PF9996/37	8670 000 20668	62948 08224 33040 04107	00016 01073 16512 03040
42PF9956/12	8670 000 20661	13668 40992 49472 04096	04118 01793 08288 11458
42PF9966/12	8670 000 20646	30180 40992 49472 04096	04118 00513 24672 11457
42PF9966/37	8670 000 20647	62692 08224 33040 04107	00016 00049 32896 11458
42PF9966/79	8670 000 20649	62948 08224 33104 04107	04112 00017 32896 11457
42PF9966/93	8670 000 20652	62948 08224 33104 04111	04112 00017 32896 11457
42PF9966/98	8670 000 20651	62948 08224 33104 04107	04112 00017 32896 11457
42PF9986/12	8670 000 20669	62948 40992 49488 04097	04118 01281 16480 03296
42PF9986/69	8670 000 20672	62948 08224 33104 04107	00016 01297 16512 03296
42PF9986/93	8670 000 20674	62948 08224 33104 04111	00016 01297 16512 03296
42PF9996/37	8670 000 20675	62948 08224 33040 04107	00016 01329 16512 03296
50PF9956/37	8670 000 20659	46436 08224 33024 04096	00016 00305 16512 11713
50PF9966/12	8670 000 20653	62948 40992 49472 04096	04118 00257 16480 11713
50PF9966/37	8670 000 20654	62692 08224 33040 04107	00016 00305 16512 11714
50PF9966/69	8670 000 20656	62948 08224 33104 04107	04112 00273 16512 11713
50PF9966/93	8670 000 20657	62948 08224 33104 04111	04112 00273 16512 11713
50PF9996/37	8670 000 20658	62948 08224 33040 04107	00016 00305 16512 11714

An option number (or "option byte") represents a number of different options. When you change these numbers directly, you can set all options very quickly. All options are controlled via eight option numbers.
When the EAROM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a sticker inside the TV set.

Example: The options sticker gives the following option numbers:
1. 62692 08224 33040 04107
2. 00016 00049 32896 11458

The first line (group 1) indicates options 1 to 4, the second line (group 2) options 5 to 8.
Every 5-digit number represents 16 bits (so the maximum value will be 65536 if all options are set).
When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.

Note: *As the info was not up-to-date at the time of writing, the option number explanation is not given in this manual. As soon it becomes available, a Service Info or update manual will be send out via the appropriate channels.*

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter

Note:

- Only **new** (not recently published) circuits are described ere. For the other circuit descriptions, see a.o. the FTL13 Service Manual.
- In the following text, the model year 2003 refers to the FTL13 chassis, while the model year 2004 refers to the new FTL2.1 chassis.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the wiring, block and circuit diagrams. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

This chassis contains, compared to its predecessor, the following **new** features/components:

- **New Small Signal Board** (SSB) with lower height due to a.o. flat mounted tuners. This board is completely shielded (i.s.o. only the FBX).
- **FEM** (Falconic Embedded Memories): this is a new Falconic IC with internal Field memories and jagged line removal feature.
- **Improved 2D/3D Comb filter**: The new key components are Columbus and SDRAM. When SDRAM is used, a 3D comb filter (or temporal comb filtering) is possible. Without SDRAM, only 2D comb filtering (or spatial comb filtering) is possible. This is improved with respect to the previous 2D comb filter.
- **Improved noise reduction**: This is a second function of the Columbus and SDRAM. Noise reduction is possible without SDRAM (2D) and with SDRAM (3D).
- **Pixel Plus 2**: Eagle 1B is replaced by Eagle 1C.
  - Algorithms for Horizontal LTI and Vertical LTI are improved.
  - "Thin Line Control" as part of the sharpness control.
  - "Face Depending Peaking" should allow less sharpness in faces different from the rest of the picture. This could be used to anti age faces versus the rest of the picture.
  - "Vivid Colors 1" will result in more saturated colors.
  - The range/amount of "Blue Stretch" is extended.
  - More steps of "Green Enhancement".
  - Improved "Color Dependent Sharpness".
  - Increased range of skin gain and skin tone.
- **Proximity sensor**: to detect motion when the customer is approaching the set, and then to light up the LEDs on the set for 6 s (detection area is 1.5 - 2 m).
- **Improved/new AutoTV functions**: AutoTV 2004 has some new hardware configurations. Applying an LCD panel requires to have contrast reserve and backlight regulation. Applying a PDP panel requires having contrast reserve as well (no backlight regulation). The Eagle 1C is detected automatically. “Columbus improved noise reduction” is used when the Columbus is present.
- **Ambient Light**: To control lamps at the rear of the TV with respect to the measured ambient light level from the light sensor or the picture content, a control output from AutoTV has been foreseen.
- **DVI input** for Europe, **HDMI input** for NAFTA and AP.

The chassis consists of a full sized SSB, a Power Supply, and some smaller PWBs for Audio, I/O, and Control functions. The main functionalities are:

- **Power Supply**:
  - For **FHP** displays, this is an LLC power supply, based on the one used in the earlier plasma monitors (FMxx chassis). This supply (single sided) is built up very conventional, with hardly any surface mounted components on the copper side.
  - For **SDI** displays, this is a "black box" for Service (board/module swap).
- **SSB**: Core TV functionalities, being TXT(CC)/control, video and audio decoding, feature box, video featuring, and sync/geometry control. The SSB is a high tech module (four layer, 2 sides reflow technology, full SMC) with very high component density and full shielding for EMC-reasons. Despite this, it is designed in such a way, that repair on component level is possible. To achieve this, attention was paid to:
  - Clearance around surface mounted ICs (for replacing).
  - Detailed diagnostics and fault finding is possible via ComPair.
  - Software upgrading (only for main software) is possible via ComPair.

On the drawings (next page), it is indicated where all the functional cells are located on the SSB (mind you that this is just an indication):

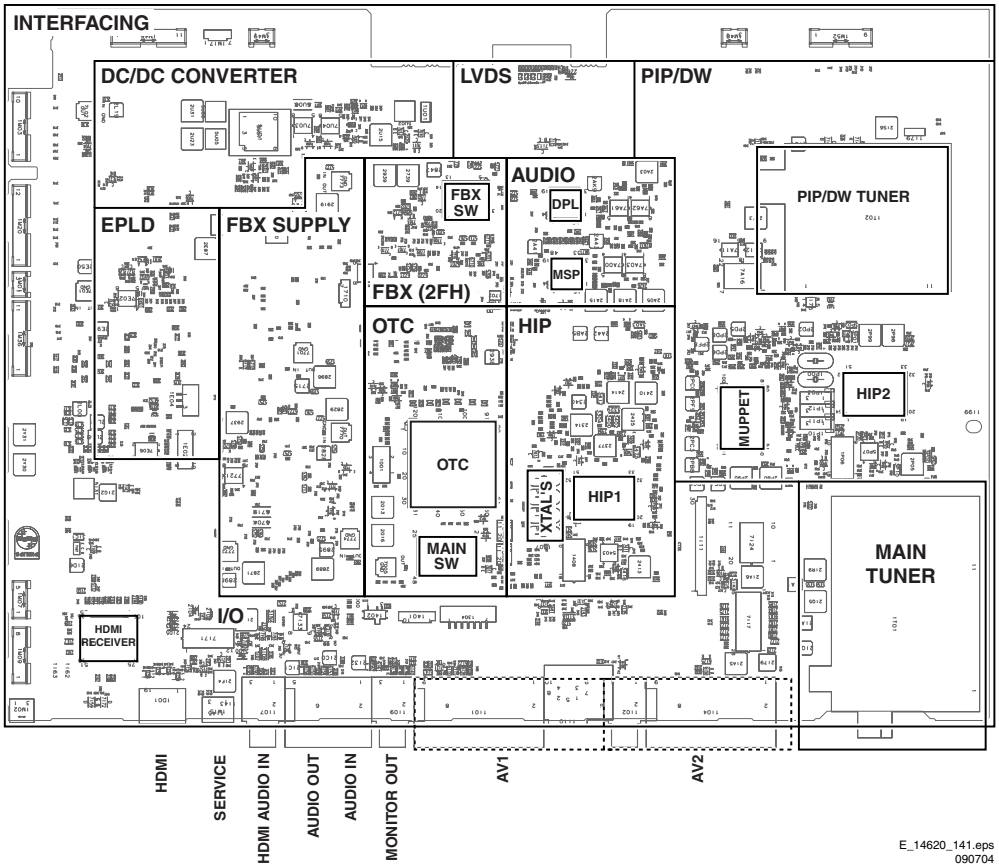


Figure 9-1 SSB top view

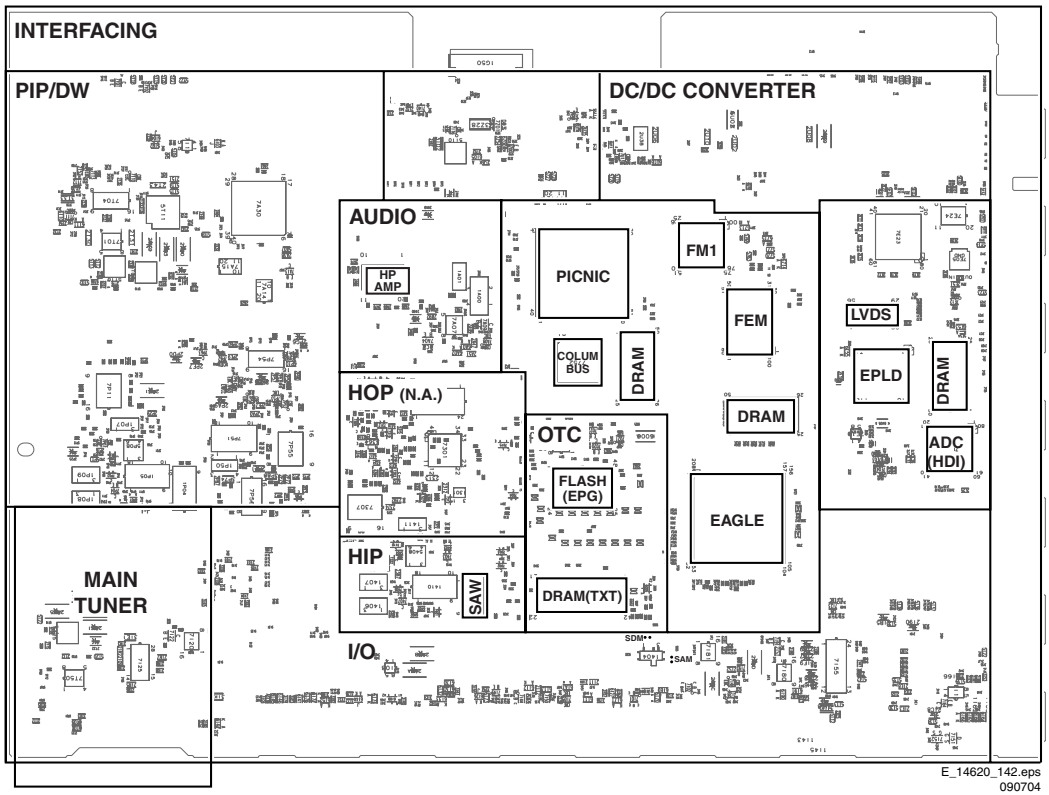


Figure 9-2 SSB bottom view

9.2 Power Supply Unit

9.2.1 Power Supply Samsung PDP (SDI)

General

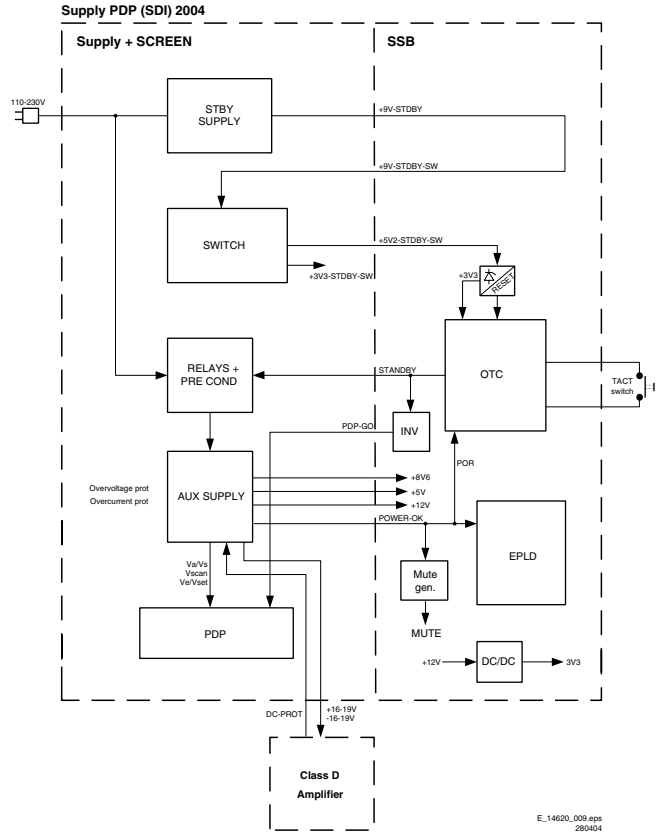


Figure 9-3 Block diagram PDP (SDI) power supply

The Power Supply of SDI PDPs is a buy-in PSU. This Power Supply is divided in 2 parts:
- One PSU for the PDP itself (incl. the Standby Supply).
- One "sub" PSU for the SSB.

For Service the Power Supply is a black box. When defective (this can be traced via error-codes in the error buffer, or by strange phenomena), a new panel must be ordered and after receipt, the defective panel must be send for repair.

Standby Supply
The Standby Supply is directly connected to the mains, there is no mains switch.
- US: the mains input has a polarisation that is requested for the USA together with a polarised mains cord. The neutral is connected to the mains neutral.
- EU/AP: A non-polarised cord is used for these regions.

Changes in 2004:
There is no ON/OFF switch, the +9V_STDBY is always connected to the switching part.

Switch
The +9V_STBDBY_SW is routed to the “switch” part in the supply. This part generates the 5V2_STDBY_SW to the OTC supply (which generates its own reset).
The +3V3_STDBY_SW is not used on the SSP, it is only used for the CPU of the plasma panel.

Relays and Pre-conditioner
If the STANDBY bit in the OTC is zero, the STANDBY line is “low”, and the relay in the supply connects the mains voltage to the AUX supply.
For the US region, the mains voltage is doubled.

The OTC delivers a PDP-GO signal to the PDP when the set is not in standby.

Aux Supply
This is an LLC supply that delivers the Va, Vs, Vscan, Ve, and Vset directly to the PDP.

Changes in 2004:
- The voltages +12V, +8V6, +5V, and the tuner supply are derived from the PDP supply. The +3V3 is generated by the DC/DC converter on the SSP.
- The AUX supply delivers a POWER_OK signal to the EPLD (is not used by the EPLD). This signal is used as POR signal to prevent audible plops, and by the OTC to guarantee a proper “switch off” (via the mains plug).
- The +V and -Vsound are routed to the class D audio amplifier. The DC_PROT signal from this amplifier goes directly to the supply and causes a hardware protection.
- The AUX supply has its own over-voltage and over-current protection.

9.2.2 Power Supply Fujitsu PDP (FHP)

Note: In the following text, the model year 2003 refers to the FTP1.x chassis, while the model year 2004 refers to the new FTP2.x chassis.

General

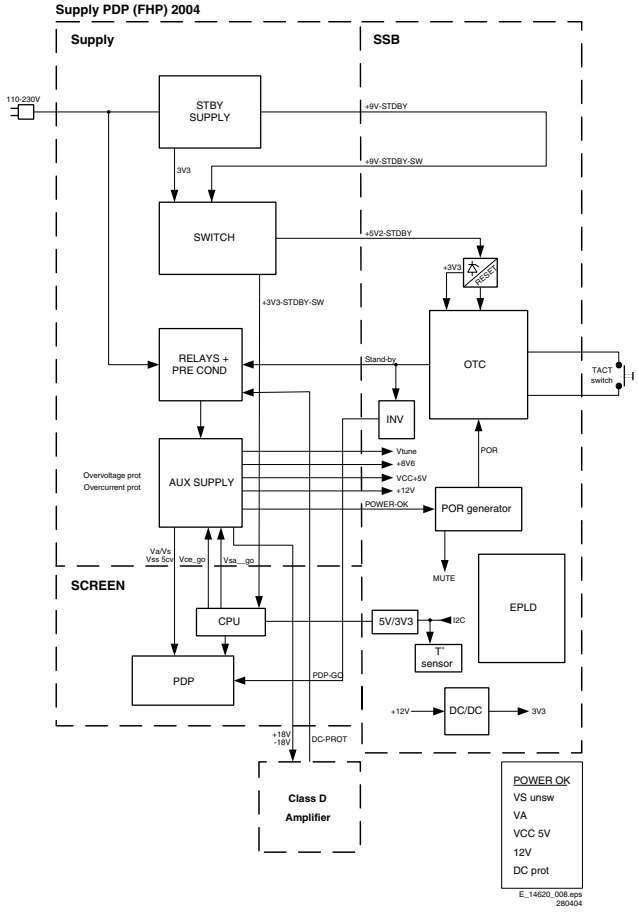


Figure 9-4 Block diagram PDP (FHP) power supply

Changes in 2004:
- Switched 3V3 and 5 V on Standby Supply not necessary anymore: a tact switch replaces the ON/OFF switch.
- No I^2C I/O expander anymore for fault reading.
- No fan control anymore.
- Over-voltage protection omitted on the 12 V supply.
- 3V3 protection becomes 12V protection.

- LLC resonant supply: 9 V becomes 30 V for the 12 V down converter. Extra filter added for detecting low frequency.
- Pre-conditioner: extra protection for mains dips.
- 3V3 down converter becomes 12V down converter for Ambilight and DC/DC converter on the SSB.
- Sound supply slightly different: more power, higher voltage.
- Minor modifications on the Vcc control IC TEA1507.
- Va converter: no current detection anymore towards the PDP panel.
- The OTC is always powered.
- A special STANDBY situation is created called the OFF state.

Differences with the SDI PSU:

- Combined MAIN and STANDBY supply, with preconditioner.
- The sound supply is +18V and -18V.
- The display CPU gives a Vce_go and Vsa_go to start-up the Aux supply.
- The Power_OK line monitors the Vs_unswitched, Va, Vcc_5V, 12V, and DC_PROT. This Power_OK is combined via an AND port with the 9V_STDBY_SW and this generates the POR to the OTC.
- A temperature sensor measures the temperature of the SSB. The maximum power is decreased when the temperature becomes too high.
- In SEMI-STANDBY and ON, the Ambient Light is powered.

Table 9-1 PSU output voltage overview (for FHP plasma panel)

Name of outp. voltages	Destination of outp. voltages	Usage of output voltages	Nominal Value	Nominal output current
Vs (or sustain voltage)	Plasma display	For the actual light generation of the display, consumption is correlated to light output level. (With a dark screen there is still consumption)	75 V to 90 V (adjusted per display)	3.0 A typical, 20 A peak
Va (or address voltage)	Plasma display	For the addressing of the pixels of the display, consumption is correlated to variation in light output between adjacent pixels.	50 V to 65 V (adjusted per display)	3.5 A max, 8 A peak
Vcc	Plasma display and SSB	Powers the logic electronics on the PDP and digital circuits on the SSB	5.1 V	3.0 A typical, 5.0 A peak
Vpr or 3V3*	Plasma display	For the logic control board (micro processor)	3.3 V	50 mA nominal
5V2 *	Small Signal Board	For the micro processor and related circuits	5.2 V	500 mA nominal, 80 mA in standby
9V *	Only used inside the PSU	For the two relays	9 V	100 mA nominal
25V_HOT	Only used inside the PSU	For the controller of the LLC converter	25 V	
12V	Small Signal Board and ambient light inverter board	Used by DC-DC converters on the SSB to generate lower voltages, the consumption by the inverter board is correlated to the ambient light levels.	12 V	2.8 A with ambient lighting on maximum (800mA for SSB, 2 A max for ambient light)
8V6	Small Signal Board	Used by analog chips on the SSB	8.5 V	0.55 A

Table 9-2 PSU control signal overview (for FHP plasma panel)

Name of signal	Destination or origin	Type of signal	Function
Vcego	From Display to PSU	Two states H or L, H is active (3V3 levels)	Enables the LLC and Vcc converter to start up, only the Vcc (5 V) is applied to the display
Vsago	From Display to PSU	Two states H or L, H is active (3V3 levels)	Enables the Va converter to start up, the Vs voltage and Va voltages are applied to the display
Standby	From SSP to PSU	Two states H or L, high is active (H is standby) (3V3 levels)	When high the mains relais are opened so only the standby converter remains active. In a playing tv set this signal is low.
Vrs	From Display to PSU	Analog signal, increasing Vrs means increasing Vs (0..2 V)	Adjusts the value of the Vs output voltage, the display measures the Vs value and adjusts it to the optimal value which is different for every individual display.
Vra	From Display to PSU	Analog signal, increasing Vra means increasing Va (0.2 V)	Adjusts the value of the Va output voltage, the display measures the Va value and adjusts it to the optimal value which is different for every individual display.
Power_OK	From PSU to SSP	Two states H or L, high is active (3V3 levels)	Becomes high if Va, Vs, Vcc, 12 V, 8V6 are within their limits so if these outputs are working normal
DC_prot	From audio power amplifier board to PSU	Two states H or L, high is active	In case the DC level on the loudspeakers exceed the limit, the sound amplifier panel puts this signal line high.

Power States

There are four different power states. Their characteristics are summarised in the "Power states" table.

Note:
- All regions use a red LED for STANDBY and a blue LED for ON. Otherwise, there is no visible difference between OFF and STANDBY.
- In SEMI-STANDBY coming from STANDBY, the blue LED is "on",
- In SEMI-STANDBY coming from ON, the red LED is "on".

Table 9-3 Power states

Power States	Switch	PDP
OUT (Mains cord disconnected)	X	No power.
OFF	OFF	Standby supply is working. Main supply not working. 2003: OTC is not powered. 2004: OTC is powered and is in low power standby. No LED is "on". No P50 or EPG (Europe). Proximity sensor is "off". No time extraction started. No ambient light.RC6 ignored.
STAND BY (1)	ON	Standby supply is working. Red LED is "on".
SEMI STAND BY (Going to ON)	ON	Standby supply is working. Main supply is working. PDP is "on" and blanked. EPG loading and P50 recording are possible (Europe). Time extraction. 2003: Red and Green LEDs are "on". 2004: Blue LED is "on".
ON	ON	The set is working. 2003: Green LED is "on". 2004: Blue LED is "on".
SEMI STAND BY (Coming from ON)	ON	Standby supply is working. Main supply is working. PDP is "on" and blanked. EPG loading and P50 recording are possible (Europe). 2003: Red and Green LEDs are "on". 2004: Red LED is "on".
SEMI STAND BY AMBIENT LIGHT ON	ON	Standby supply is working. Main supply is working. PDP is "on" and blanked. Red LED is "on".

(1) Standby, entered via the remote or via a protection. A special case of STANDBY state is the SERVICE STANDBY STATE. A service engineer with a "ComPair/Dealer Service Tool" can enter it. In this state, an IR LED can be used for Diagnostics (for reading error codes). It is the starting condition for the “stepwise start-up".

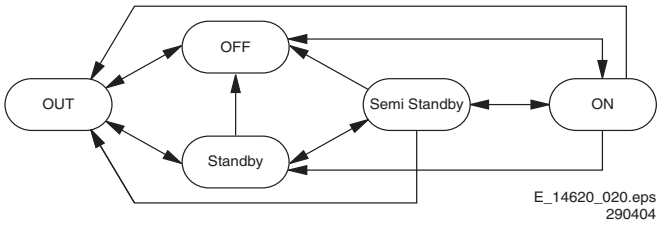


Figure 9-5 Power state diagram

- **OUT:** The set is OUT when the mains cord is disconnected. When the mains cord is connected, the set goes to OFF or to STANDBY state, depending on the last status in the NVM. From all states, the set can be set to the OUT state by disconnecting the mains cord or by a mains interruption.
- **OFF:** In the OFF state, the OTC is powered but is in low power STANDBY state. No LEDs are "on", RC6 is ignored, no EPG or P50 is possible, Proximity is set to "off", time extraction is not started (if it was done before this state, the clock stays running). The tact switch can only change this state; the set goes via SEMI-STANDBY to ON. From all states, we can go to the OFF state by the tact switch.
- **STANDBY:** The set is in STANDBY if the STANDBY bit is set. This state can change with the RC6 "on" command, for EPG loading, P50 recording, for time extraction, or for ambient light. The next state is SEMI-STANDBY and to ON if the STANDBY bit is not set.
- **SEMI-STANDBY:** State between STANDBY or OFF and ON state. All supply voltages are present, but the screen is blanked.
- **ON:** set is ON.

POR detection

Situation in 2003:
- After all the supply lines are available, the supply generates a POWER_OK signal (active "low"). This signal is used as POR to mute the sound as long as this line is not "low". The POR is inverted (called ROP) and is used to mute the sound as long as the POWER_OK is "low".

Changes in 2004:
- A POK (Power OK) signal is generated by the supply when all the voltages are within specs. This line is used as POR_FLASH for the OTC.
- For "anti-plop", a transistor generates a signal. The collector is via a resistor connected to the +5V2, the base is connected to the POK signal. The collector signal follows the 5V2 until the POK is high. The transistor conducts, the collector becomes "low", and the sound will be de-muted.

Start-up sequence

1. When the mains is connected, the standby supply delivers 5V2 to the Small Signal Board, 3V3 to the display control electronics, 20 V for the Vs converter (25VHOT), and 9 V for the relays.
2. When the TV set goes from STANDBY/OFF to ON mode, the STANDBY signal line is made "low" by the SSB. Relay 1450 closes, sending the mains to the pre-conditioner. The pre-conditioner starts up and delivers 390 V_dc.
3. The SSB has also a signal line running towards the display electronics called CPUGO, it is part of the LVDS cable. This signal is driven by the STANDBY line via a simple inverter. So CPUGO is made "high", which retrieves the display out of its low power mode.
4. The OTC on the SSB sends an I^2C command to the display in order to start up. The display in turn makes the VCEGO signal line towards the power supply "high" after it has verified that the Vcc supply voltage is indeed still "low".
5. The Vs converter, which was already supplied with 400 V by the pre-conditioner and with around 20 V by the standby supply (25VHOT), is enabled by optocoupler 7003. It generates 65 V at the Vs_unsw output and around 24 V at the 30 V auxiliary output. Further the Vcc converter is started up delivering 5.1 V typical to the display. Also the 12 V converter starts up.
6. The display monitors the Vcc voltage. On condition Vcc becomes "high" and Vs and Va are still "low", it applies the analogue control voltages Vrs and Vra to the supply and makes VSAGO high.
7. The display monitors Va and Vs, it waits 5 seconds for Va to rise above 29 V and Vs to rise above 69 V. If successful, the power supply is fully started up. If the 5 seconds run out, the display shuts down and retries the procedure from the beginning.

9.3 Feature Box

The key components of the FBX are the following ICs:
1. PICNIC.
2. Columbus.
3. FEM.
4. Eagle.

Use the blockdiagrams in the schematics section.

9.4 PICNIC

All FBX versions have the PICNIC as basic IC. All functions located in the PICNIC are therefore basic functions, and will be described briefly. These functions are completely controlled by the built-in microprocessor.

- **Clamp.** In the PICNIC, three analogue clamp circuits are integrated that assure a well defined DC level for the luminance (Y) and color-difference (U, V) input signals.
- **AGC.** The AGC in the PICNIC consists of a digital controlled analogue variable gain amplifier with a gain range of 9.3 dB, and an algorithm that uses input derived from histogram data and the overflow detection. It is designed to assure an optimal ADC input range, for all input signals, and so having minimal quantisation noise.
- **Analogue pre and post filters.** The pre filters of the Feature Box are always the integrated filters of the PICNIC. The internal post filters of the PICNIC are never used.
- **ADC/DAC.** Analogue to Digital conversion is done with three identical 9-bit ADCs, and the Digital to Analogue conversion uses three identical 10-bit DACs. The Y signal is mapped on 9 bits for black-to-white range and has room for over- and undershoots by means of the 10th bit at the output DACs. The U and V channels are processed in 9-bit accuracy up to the CTI circuit that has a gain of 2, resulting in a 10-bit output that suits the 10 bit DACs.
- **Time Base Correction.** The Time Base Correction circuit simulates a fast acquisition line locked clock, while the actual system clock is locked to the input line frequency with a very large time constant. In this way the typical VCR problems linked to a one clock Feature Box can be solved, particularly the deflection circuit (in case of CRT) driven by the Feature Box can profit from this feature.
- **VCR detection.** The VCR detection of the PICNIC is an algorithm that detects the phase jumps (which occurs for instance with VCRs) to be able to correct the picture deviations. This detection is done by monitoring the PLL circuit in the PICNIC by the on-board microprocessor on several parameters.
- **Peaking.** The two dimensional peaking can boost or attenuate higher frequencies in both vertical and horizontal direction. The lowest setting is a 2D low pass. The higher settings make sharpening, but the resulting overshoots can clip relatively fast compared to the dynamic peaking, because there is no room for overshoot above white and under black. This peaking is done on field base.
- **Digital Noise Reduction (DNR).** The PICNIC accommodates three noise reduction circuits:
  - **Clinic.** This "clamp noise reduction" circuit consists of an adaptive temporal field recursive filter. It corrects the DC level of each line, when it is varying from field to field in the line segments with likely the least movement. It can be used to correct clamp errors that cannot be restored by conventional clamp circuits. The filter is completely autonomous for the user, who can only switch it “on” or “off”.
  - **Limeric** (this part is not used in case of Columbus). This spatial noise reduction circuit is targeted for reduction of the mid frequency noise spectrum, where adaptive filtering combines pixels around the centre pixel and pixels from the lines above in a recursive way. The quantity of noise reduction is user defined.
  - **2D Coring.** This circuit attacks spatial noise in a very drastic way without distinguishing noise from wanted resolution. It shaves away small details of any kind, depending on the amplitude of the detail and the user setting. So, it is advised to use this feature only at the lowest settings.
- **Histogram Modification.** Using histogram modification techniques in PICNIC, the contrast of the overall picture may be improved. From a TV scene, the distribution of all luminance values is taken (histogram). This histogram is used to calculate an optimal transfer curve for the particular scene, which is used to process the video digitally resulting in a picture with improved contrast (called “Dynamic Contrast”).
- **Auto Picture Control.** The PICNIC is prepared to make several APC functions in co-operation with the main software. This is made by giving relevant video quality data to main, and by giving several control ‘handles’ to main microprocessor. In this way, automatic picture quality settings depending on customer settings and video data can be made. The following items are prepared in the AutoTV:
  - **Automatic Picture Control.** This feature controls the settings for DNR, Limeric, coring, sharpness and histogram modification as a function of the noise figure and signal steepness information extracted from the PICNIC and from external information such as ambient light.
  - **Automatic Aspect Ratio Adaptation.** This AARA feature uses data from the black bar detection circuit to adapt vertical and horizontal amplitude to an aspect ratio belonging to the display and does not show black bars. This is done by the control software. Auto Format is controlled via main software by reading out the black bar information from the FBX.
- **Field Rate Upconversion.** In order to remove large area flicker from the TV screen, the field-rate of the video is doubled by the Feature Box. A 50/60 Hz video input is converted to 100/120 Hz. The line frequency (16 kHz) is also doubled (32 kHz). When the video input contains fields A, B etc..., the conversion provides an AABB sequence scanning on the display. The actual up-conversion is done in the first Field Memory (FM1) by reading it twice at double speed, while writing once.
- **Input Phase.** The horizontal phase of the input video acquisition can be shifted to allow compensation for processing delay of other components in front of the Feature Box.
- **Miscellaneous Features.** To be sure that On Screen Display (OSD) is always readable, even when no video signal is received, the feature box can be switched to stable OSD mode. Free running but stable horizontal and vertical deflection drive signals will be generated, so that OSD information and PIP can be displayed jitter free, and thus clearly readable on the screen. Specially for tuning purposes and smooth channel switching a stable OSD mode is implemented that uses the horizontal time base correction combined with a slow PLL, and a small vertical catch window. This mode enables undisturbed reading of OSD while the set is tuning.

9.5 Columbus

9.5.1 Introduction

The Columbus is a combination of:
- A **2D/3D Comb filter** for both PAL and NTSC, and
- A **spatial/temporal noise reduction system** for both color and luminance signals.

The Columbus 3D Comb filter uses digitalized CVBS, U, and V (or C) signals and can be used with or without an external 16 Mbit SDRAM. Without external 16Mbit SDRAM, 3D comb filtering and temporal noise reduction are not possible.

The noise reduction part of the Columbus is controlled by the FBX software using the SNERT interface (the “Limeric” noise reduction in the PICNIC is “off” in case of a Columbus application). The 2D/3D Comb filter part is controlled by the Main software using the I^2C bus.

9.5.2 2D/3D Comb Filter

Introduction

The “3D Comb filter Columbus” is a combined 2D/3D Comb filter function that is part of the Columbus chip (item 7752). It is a comb filter for both PAL and NTSC.

The 3D Comb filter is used to separate chroma and luminance components out of a CVBS signal. It is of no use when the CVBS signal is a SECAM signal (SECAM signals cannot be combed) The Columbus chip can be used with or without 16 Mbit external SDRAM (item 7753). When an external SDRAM is connected to the IC, the Comb filter function can work in combined 2D/3D processing (depending on the detected pixel based motion). When no external SDRAM is connected, only 2D Comb filtering is possible.

The Columbus can comb the following standard signals:
- PAL B, G, H, I, D, K: Color standard PAL, Color carrier at 4.43 MHz, field frequency: 50 Hz
- PAL M: Color standard PAL, Color carrier at 3.58 MHz, field frequency: 60 Hz
- PAL N: Color standard PAL, Color carrier at 3.58 MHz, field frequency: 50 Hz
- NTSC M: Color standard NTSC, Color carrier at 3.58 MHz, field frequency: 60 Hz

For NTSC signals, the PAL delay line must always be bypassed.

The following signals CANNOT be combed:
- Double Window signals or Multi PIP. For these signals, only one part or even no part of the signal is in relation with the burst. The part that is not in relation with the burst can become very blurred when combed by the Columbus Comb filter. Such a signal must be bypassed. Notch mode is not even an option since e.g. in double window, one part can be a PAL signal while the other part is NTSC or SECAM.
- In cases where a SECAM signal is presented to the Columbus Comb filter; both the luminance and UV path must be bypassed. The PAL delay line inside the Columbus cannot be used for SECAM signals so it must also be bypassed. The luminance path must have luminance at its input instead of CVBS. A chroma delay line outside Columbus must be used for SECAM signals. Reason for this: the Columbus PAL delay line halves the output of the chroma signals in case of SECAM.
- Y/C, YPbPr, and RGB signals do not have to be combed. So both the luminance and UV path must be bypassed. The PAL delay line will also be bypassed.
- In cases where the Columbus Comb filter does not receive a CVBS signal with burst at the right place according to the standard (this includes black and white signals without burst), phase correction results become unpredictable and the Comb filter must be set in bypass (= luminance path bypassed, UV path bypassed, PAL delay line bypassed)
- VCR signals cannot be combed and must be processed in notch mode, or bypassed.

Columbus Modes

The several modes of the Columbus 3D Comb filter are:
- Bypass mode.
- Band-Pass-Notch mode.
- 2D Comb filter modes.
  - Simple median.
  - Median.
- Field Comb filter mode.
- Frame Comb filter mode.

Bypass Mode

The 3D Comb filter can be set in bypass mode. In this mode, the CVBS, U and V signals are just bypassed to the output.

Band-Pass-Notch Mode

This is a mode where no Comb filtering is applied. A “Band Pass Filter” is used to filter the chroma information out of the CVBS signal. A “Notch Filter” is used to subtract the sub carrier out of the CVBS in order to make a luminance signal without chroma sub carrier.
In terms of cross color and cross luminance, this mode has the worst performance of all. It is only used on these signals where no comb filtering can be applied (non-standard signals and most VCR signals for example).

2D Comb filter modes

A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a line-delayed pixel, we talk about a “Spatial or 2D Comb Filter” (for NTSC the delay must be 1 line, for PAL it must be 2 lines).
Spatial or 2D Comb filters show problems on vertical color transients and on single colored lines. For these situations, extra hardware is added in the Columbus chip to avoid these kinds of problems. However even with these extra measures, there are still situations where the 2D Comb filter does not perform optimally (diagonal resolution and single lines with equal luminance content). In order to restrict the working area of the 2D Comb filter to the frequencies where the sub carrier is present, a horizontal band pass filter always precedes a 2D Comb filter.
When a 2D Comb filter has no extra hardware to avoid problems at vertical color transients (or this extra hardware is switched “off”), the Comb filter is called a “simple median filter”. When there is extra hardware to avoid these kinds of problems, the filter is called a “median filter”.

Field Comb filter mode

A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a field-delayed pixel, we talk about a “Field Comb Filter”. Field Comb filters are only for PAL of commercial interest.
Field Comb filters show also problems on vertical color transients and on motion. For the vertical transients, a hanging dots detector has been added, however the performance on vertical transients of the field Comb filter, even with this hanging dots detector, is worse than the performance of the 2D Comb filter. On motion, the field Comb filter performs very badly. A motion detector must detect the pixels where there is motion and on these pixels, the Comb filter must be forced back to 2D Comb filter mode. This switching back is not implemented with a hard switch, but with a motion controlled fader. When there is a lot of motion, the fader will take a lot of the 2D Comb filter output, when there is less motion, more field-combed signal will be taken.
A field Comb filter is also called a “vertical-temporal filter” because it filters in the vertical and temporal direction.

Frame Comb filter mode

A Comb filter does an action on a current pixel and a delayed pixel. When the delay is a frame, we talk about a “Frame Comb Filter”. For NTSC we need a delay of one frame, for PAL however the delay must be two frames.
Frame Comb filters have the best performance, but just like the Field Comb filter, they perform very badly on motion. A motion detector will have to detect motion and on these motion pixels, 2D Comb filtering will have to be applied. A frame Comb filter is a pure “temporal filter”.
The Columbus needs an external memory connected to it, before it can do a temporal or vertical-temporal Comb filter action. When no external memory is connected, field or frame Comb filtering is impossible.

Block Diagram

The signal CVBS-TXT that used to go to the "old" Comb filter (item 7307 in EM5.1E) is here re-routed via an emitter follower (7320) to the Y and C input of the HIP. The chroma demodulator in the HIP demodulates the CVBS to U and V signals. These signals are sent to the HIP output together with the CVBS signal. So, the HIP delivers CVBS (and not Y), U, and V to the PICNIC.

Note: All these signals are not combed and have no notch filter either, so there is a lot of cross color and cross luma present.

In the next block diagram, two main parts of the Columbus 2D/3D Comb filter can be seen:

- The upper part is what is called the luminance Comb filter. It tries to make an as clean as possible luminance signal out of the CVBS signal at the input.
- The lower part receives U and V signals (sequentially) that are normally only band pass filtered in front of the 3D Comb filter. It filters all left over luminance signals out of it, in order to make an as clean as possible U and V signal.

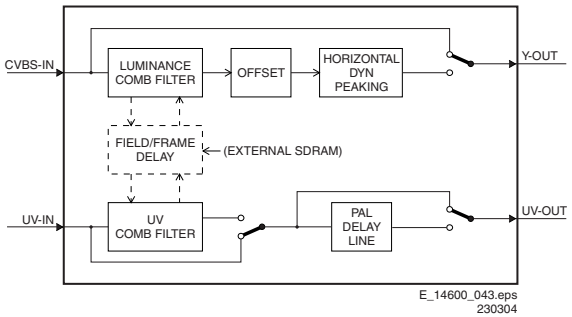


Figure 9-6 Columbus 2D/3D Comb filter block diagram

The Comb filter has two inputs. One is the CVBS where clean luminance (Y) will be extracted from; the other one is UV where a clean U and V signal will be extracted. Both input signals are **digital** signals.

The field or frame delay is used for the Field and Frame Comb filter mode. An external memory connected to the Columbus IC provides this delay.

Phase correction is done at the inputs of both the Comb filter blocks. There is a phase correction for spatial filtering (called the spatial phase corrector) and a separate phase correction on the signals used for temporal (Frame or Field) Comb filtering (called the temporal phase corrector).

The offset block receives the motion dependant 2D/3D Comb filtered signal as input. The black level of the luminance signal is restored and the result is output. The black level restoration is corrected continuously. However, on VCR signals, this restoration can become unstable. Therefore, on VCR signals, a fixed black level restoration value must be forced.

A horizontal dynamic peaking can be done on the luminance signal. This peaking is adaptive in order not to amplify any cross luminance distortion. It detects where there could be left over sub carrier in the luminance signal and reduces the peaking over there. The detection of the left over cross luminance is different depending on the pre-filter or post-filter mode.
The amount of peaking and coring can be chosen. The peaking algorithm behind it is a simplified copy of the luminance peaking of picnic. After the peaking block, the signal is output as clean luminance.

The bypass switches have the obvious purpose of bypassing the input signal, in case no Comb filtering is wanted.

A PAL delay line is added in the UV path. This is done because a delay line in front of the 3D Comb filter does need an extra vertical filter action on the UV signals. This vertical filtering deteriorates the vertical transient performance for colors. The Columbus Comb filter cannot undo this. However, this reduction in performance can be omitted by putting the PAL delay line after the 3D Comb filter block.
For PAL signals, the PAL delay line in front of the Columbus 3D Comb filter is bypassed and the Columbus delay line is switched "on". In cases where the delay line in front of Columbus cannot be bypassed, the Columbus PAL delay line is bypassed.
For NTSC signals, the PAL delay line is bypassed as usual.

9.5.3 Noise Reduction and Noise Estimator

The noise reduction function is a sophisticated successor of the noise reduction module from the PICNIC-chip, also known as "LIMERIC".

Besides the noise reduction part, the Columbus noise reduction module also comprises a noise estimator. This noise estimator (the LORE-noise estimator) is a new design with the ambition of more accuracy and with less control complexity than the existing noise estimators.

9.6 FEM (Falconic Embedded Memory)

The FEM IC (SAA4998) is the successor of the SAA4993H, and adds "jagged line removal" and "embedded field memories" as new/improved features.

9.6.1 Motion Estimation/Compensation

The FEM utilizes a high quality motion estimator. The motion estimation is applied to eliminate the motion blur of current 100 Hz TV sets and to eliminate the motion judder of movies. This judder is visible on all television sets and even in a cinema. Particularly for movies (with only 25 pictures/second), the increased number of pictures helps to smoothen the motion. These improvements a.o. lead to a picture performance improvement on a global scale, with an optimal quality independent from the received standard (50/60 Hz and/or video/film) or display mode (field doubling/de-interlaced 1fV). Especially film judder removal from a 60 Hz input source, the so-called 3-2 pull down film mode, makes the FEM globally applicable.

9.6.2 4:2:2 processing

The color data path in the FEM is implemented in 4:2:2 bandwidth (as in PICNIC). The 4:2:2 mode requires an Field Memory (FM1) of 16 bits wide.

9.6.3 Upconversion

The FEM is always used in combination with the Eagle. Therefore, the output is always adapted to the input of the Eagle. This 2fV/4fH signal is motion compensated. Only 3 out of 4 fields are correct motion compensated. The Eagle will only use these three correct motion compensated fields.

9.6.4 Dynamic Noise Reduction

For signals that have been affected by noise, improvement can be achieved by combining of the pixel values of the current and past fields of video. This is however only possible for those picture areas in which no movement occurs. If movement occurs in some area, only the information from the current field of video may be displayed for that area to prevent smearing, so noise reduction is not effective there.

To reduce loss of detail, the high frequencies can be bypassed. This can be done because the human eye is more sensitive to noise with low frequencies. The movement detection is implemented in the luminance channel and in the color channel to reduce artefacts such as smearing.

9.6.5 Vertical Peaking

The vertical peaking circuit in FEM works on de-interlaced data, resulting in a double resolution (compared to PICNIC) high vertical frequency enhancement.

9.6.6 EDDI

EDDI is an Edge Dependent De-Interlacer. This improved de-interlacer, results in smaller jagged lines for video input sources (not for film sources!).

9.6.7 Strobe

Having a FEM in the data path, it is easy to create a still picture or freeze feature. A frame can be frozen once, or, using the strobe feature, repetitively after a certain programmable interval of time. The Eagle is used to make “still pictures”.

9.7 Eagle

The Eagle has the following features:

- **Vertical upscaler.** Two fully programmable vertical upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the color difference signals. However, the number of output lines is never allowed to exceed 1024 lines per field including blanking. This means that 1050i/1250i is still possible.
- **Vertical Zoom.** The vertical zooming is done with the vertical upscaler of the Eagle instead of using the FEM upscaling. Zoom factors varying from 1 to 8 can be selected. Vertical compression is possible in 1fV up to a factor of 2.
- **Interlacer and horizontal upscaler.** Two fully programmable horizontal upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the color difference signals.
- **Continuous horizontal zoom/compression.** The horizontal zooming is done with the interlacer and horizontal upscaler of the Eagle instead of the PICNIC upscaling. In the Eagle, a digital sample rate converter can provide horizontal video compression up to 50 %, and up to 8 times zoom. In compress mode, a part of the screen remains unused. In this case, parts of the display can be filled in with a grey value, a color, or other signal source that bypasses the Feature Box (CC or another compressed picture).
- **Panorama.** A panoramic horizontal distortion on the picture can be applied to make a screen-fitting picture, without having black side panels, or lost video. This is mainly used to fit 4:3 pictures in a 16:9 display with a resulting correct aspect ratio in the middle of the screen and stretched video at the left and right sides. The inverse feature is called “amaronap” and can also be applied.
- Sub pixel **Luminance Transient Improvement** (LTI): The Eagle contains a horizontal and a vertical sub pixel LTI.
- **Peaking**: In the Eagle both horizontal and vertical luminance peaking is implemented. The horizontal peaking equals the peaking of the PICNIC. The vertical peaking is an addition of two fixed and one 9-taps fully programmable peaking filters.
  - Horizontal luminance peaking: Peaking in Eagle can be used in two ways:
    a. The first way is to give the luminance a linear boost of the higher frequency ranges, which makes no distinction between small and large details or edges.
    b. The other way is to use the peaking dynamically, in order to boost smaller details and provide less gain on large details and edges. The effect is detail enhancement without creation of unnatural large over- and undershoots on large details and edges.
  - Vertical luminance peaking: There are three vertical peaking filters. Two fixed vertical peaking filter and one fully programmable vertical peaking filter. The three filters all have their separate gain setting before the results are added. To avoid excessive gain settings a high peak suppression can be set to avoid excessive output results.
- **Color Dependent Sharpness** (CDS): The color dependent sharpness circuit increases the luminance sharpness in saturated red and magenta parts. The reduction of the normal peaking can be switched “on/off”.

The below given color features are implemented in the Eagle:

- **Digital Color Transient Improvement** (DCTI): DCTI equals the PICNIC DCTI implementation with improved control range. The DCTI is done with Eagle i.s.o. PICNIC.
- **Skin tone correction**: The idea of Skin tone correction is to correct UV components corresponding to skin towards an “ideal” skin tone axis.
- **Blue Stretch**: This feature makes it possible to shift colors near white towards more bluish colored white.
- **Green Enhancement**: This feature makes it possible to shift low saturated green colors towards more saturated green colors.
- **Color Dependent Peaking** (CDP): When using luminance peaking, the viewer has the impression that the color performance is somewhat lower then in the picture generated without the luminance peaking circuit. This impression is normal because no action was done in the color channel to compensate for the change in the luminance channel. Locally, at the edge position the contrast has been increased without increase of the saturation at this point. That is why the viewer perceives less color. To give the viewer the same color impression as on the original picture, a correction to the color has to be done at the same place where a change was made in the luminance. This is CDP.
- **Skin Tone Dependent Peaking** (STDP): The horizontal and vertical peaking can be reduced in skin tone areas to avoid that people become too old. Attenuation can be applied to both horizontal and vertical peaking.

9.8 Synchronisation

See the FTL13 manual for a (more) detailed description.

9.9 Audio

See the FTL13 manual for a (more) detailed description.

9.10 Control

See the FTL13 manual for a (more) detailed description.

9.11 Proximity Sensor (if present)

9.11.1 Introduction

The function of Proximity Sensor is to detect a motion when the customer is approaching the set. It will then light up the LEDs on the set for 6 s (detection area is 1.5 - 2 m). Its functionality is based upon IR emission, IR detection, and LED lighting processes. These three different phases are defined as follows:

1. First, it emits a signal through an IR transmitter.

2. Then it detects a reflection of this signal caused by a person approaching the set.
3. Finally, it lights up the different LEDs.

There are two IR transmitters used to cover the complete front, and detection is done with the existing IR receiver. It detects the reflected signal coming from the customer when he/she is approaching the set. If the customer presses a button on the keyboard of the Top Control, the lighting phase is also activated (or re-triggering).
The output of the module will control the lighting of the LED with a fade in/out effect.
The function can be switched “off/on” in the set-up menu.
The module is powered by the 5V_STANDBY and works in “Standby” and in “On” state.

The control of the proximity sensor is done by a separate microprocessor. The communication between this processor and the OTC is done by the RC5 line. The following info is sent via this line:

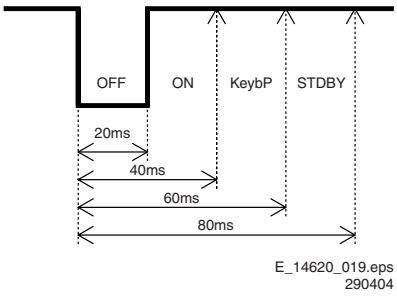


Figure 9-7 Pulses proximity microprocessor.

- Proximity OFF: negative pulse of 20 ms. The feature is switched "off" -> no detection.
- Proximity ON: negative pulse of 40 ms. The feature is turned "on" -> detection possible.
- Keyboard pressed: negative pulse of 60 ms. This gives a command to the proximity uP to turn "on" the LEDs.
- OTC goes to STANDBY: negative pulse of 80 ms. This gives an indication that the set is in "Standby" mode.

9.11.2 Block Diagram

The function diagram is shown in the next figure.

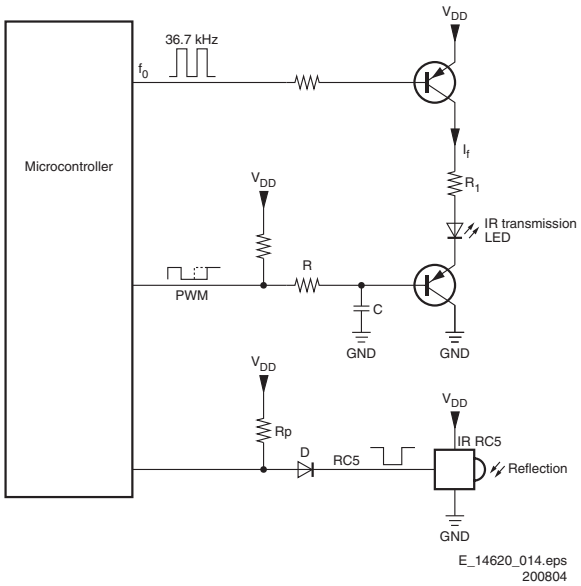


Figure 9-8 Emitting and detecting diagram

Emitting phase

IR Transmission (fo)
The IR transmission is realised with diode D6080 (TSAL5300). This IR emitting diode is modulated with a 36.7 kHz signal. This frequency (fo) is the same as the carrier frequency of the remote control system (RC5/6). The microcontroller IC7075 (87LPC760) generates a specific pattern: during one second 10 times 100 periods (T0= 1/f0) of the modulation signal is sent with a duty cycle of 50%. A timer port of the microcontroller is used to generate the 36.7 kHz

AGC of the transmission (PWM)
The Automatic Gain Control (AGC) allows managing the power of the IR emitting diode according to the detected reflection signal. The microcontroller generates a Pulse Width Modulation (PWM) signal that will change as soon as there is a reflection signal received by the RC5/6 system. If there is no reflection signal detected, the power will increase (average PWM signal tends to "0"). If a detection signal appears and remains, the power of the IR diode will decrease (average PWM signal tend to "1"). The average PWM signal is realised with a RC filter.
The maximum power depends on the forward current (If) in the IR diode. This current can be adjusted with the resistance R3022: the higher this resistance, the lower the IR power.
During the start up of the Proximity sensor feature, a calibration mode will adapt the power of the IR diode. It is clear that the distance of the detection will decrease while the PWM signal tends to "1".
If a fixed object is placed in front of the TV set, the power will be adjusted and the detection zone will be limited from the TV set until the object. A timer port of the microcontroller is used to generate the PWM signal.

Detecting phase

IR detection (Reflection)
The IR detection is done via the existing remote control system (RC5/6). This IR receiver system detects all signals that get a carrier frequency of 36.7 kHz (f0). When a signal is detected, the output of the RC5/6 system will go to "0".
For the proximity sensor, we use this detection process to activate the LED signal. The microcontroller receives the detection signal coming from the reflection. There is a reflection when the modulated pattern (sent through the IR transmitting diode) hits an object or a person in the detection zone. The IR receiver demodulates the pattern signal that is directly decoded by the microcontroller. It is clear that the reflection will depend on the color and texture of the customers clothing, or the object (table, chair...).
The figure shows the connection between the microcontroller and the RC5/6 system. The input port (an interruption pin) of the microcontroller is used for this.

Detection zone
The detection zone is defined when the IR diode power is at its maximum (average PWM signal is "0").
The Proximity sensor is more sensitive with bright and reflective clothes or surfaces. The detection zone is quite directive and is limited to one side of the set. Therefore, a divergence lens should be placed in front of the IR emitting diode to increase the detection zone and /or the IR diode orientation has to change on the main switch board.

Lighting phase

Fade in/out effect and current driver:
When the microcontroller detects a reflection signal, it will switch on the blue LEDs located on the Top Control. The light of the LED will increase gradually to full intensity (fade in effect). This effect will take 1 s. The light will remain "on" during 6 s, then it will switch "off" gradually within 3 s (fade out effect).

The light can re-trigger if the microcontroller receives the keyboard press information (as described in the "keyboard press detection" paragraph).
The fade in/out effect is realised with a simple electronic circuit (see following figure). The timing can be adjusted by changing the value of the resistors R3031 and R3032.

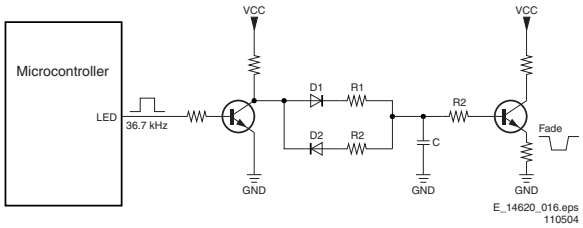


Figure 9-9 Fade in/out circuitry

A current driver circuit is used to power at least ten blue LEDs (see next figure). This current driver can supply around 120 mA thanks to the transistor TS7031.

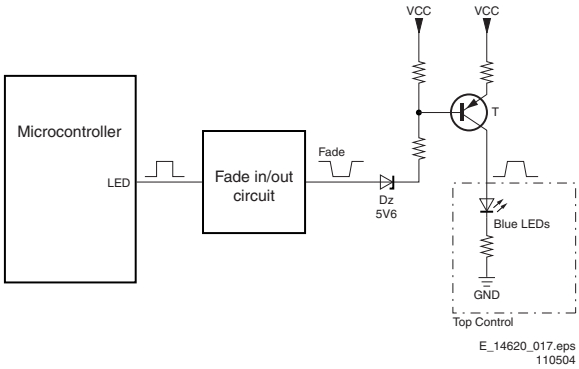


Figure 9-10 LED driver circuitry

Keyboard press detection
If the user manages to approach the set without activating the sensor but presses any button on the Top Control, the blue light will switch "on". If the user activates any button within the lighting phase, the light stays on for another 6 s.
The keyboard press detection is done by communication via the RC5/6 line. Because the OTC already receives the information KEYBOARD_PRESS, we can use the communication protocol between the OTC and the microcontroller via the RC5/6 line to switch "on" the blue LEDs.

9.12 Ambient Light (if present)

9.12.1 Introduction

At the rear left and right side of the TV-set, three gas discharging lamps are mounted. With the red, green, and blue lamps, each color can be made.
- Ambient light is adjustable with three variables: Hue, Saturation, and Brightness.
- Hue and saturation are controlled via menu control or via smart settings.
- The brightness is controlled via menu or via a cycle generator.
- The light sensor influences the brightness.
- Switching "on" or "off" goes via a ramp up or down.
- The ambient light may be active or passive.

In the user set up menu the following items are added:
- Ambient Light.
- Lights "On/Off".
- Ambient Light: "Personal/Normal/Warm/Cool".

Two extra keys are added on the Remote Control:
- ON/OFF: A (normal) press on this key switches the Ambient Light "On/Off".
- MODE: In case the set is "On", to toggle the smart modes.

Specifications:
- Lamp current frequency= 43 kHz.
- Lamp dimming frequency= 85 Hz.
- PWM duty cycle range= 30 %
- Each lamp is only driven one third of the period to avoid crosstalk (drive lamps at 33.3 % to have no losses in output).

9.12.2 Block diagram

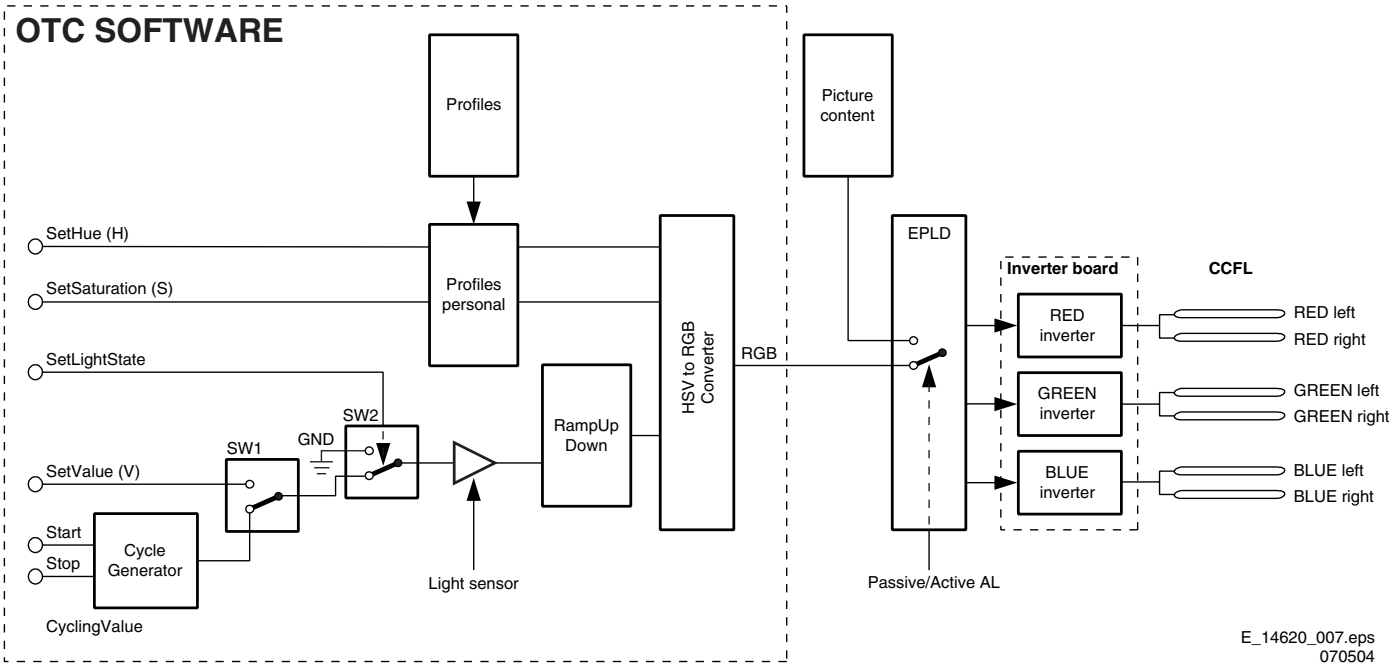


Figure 9-11 Ambient light block diagram

All mentioned blocks (from "Cycle Generator" to "HSV-to-RGB Converter" are implemented in the main software. Via I^2C, the RGB values are sent to the EPLD (where a selection is made between "active" and "passive" mode) and again via I^2C the Inverter board is addressed.
In "passive" mode, the RGB values from the "HSV-to-RGB Converter" are used, while in "active" mode the picture content is used to steer the ambient lights.

Cycle Generator
The Cycle Generator (for fade in/out) starts with a long press on the "On/Off" button on the RC. It stops when the button is released.

Light sensor
The light sensor influences the Brightness: when the room is darker, the ambient light is reduced. The amount of dimming is set according to an algorithm in the Auto TV software. In "active" Ambient Light mode, the light sensor does not influence the Brightness.

Ramp Up/down
The Brightness is changing with a speed from min. to max. in 2 s.

HSV to RGB converter.
The HSV (Hue, Saturation, Value) values are converted to RGB values.

Outputs
The outputs are RGB values and can individually be decreased.

The EPLD
In "passive" mode, the EPLD sends the info from the OTC directly to the inverter board. In "active" mode, the EPLD calculates the RGB values. Hue and Saturation are not adjustable, Brightness is adjustable.

9.12.3 Inverter Board

This board is for Service a "Black Box". This means that it is not repairable on component level, but if it is defect, the board must be swapped. See the Spare Parts List for the order code.

Some specifications:
- There are three inverters to drive the lamps, each inverter drives the Left and Right lamp for one color.
- DC-to-AC converter: 2.3 kV.
- Able to drive Cold Cathode Fluorescent Lamps (CCFL). There are two lamp units, three lamps (RGB) per unit= six lamps.
- The lamps are driven with Pulse Width Modulation (PWM).
- The inverters and lamps are supplied with 12V from main supply.

9.13 Software Upgrading

In this chassis, you can **upgrade** the Main software via ComPair. This offers the possibility, to replace the entire SW image without having to remove the flash-memory from its socket. You can find more information on how this procedure works in the ComPair file. It is possible that not all sets are equipped with the hardware, needed to make software upgrading possible.
To speed up the programming process, the firmware of the ComPair interface can be upgraded. See Chapter "Service Modes ..."; paragraph "ComPair" - "How To Order" for the order number.

See the FTL13 manual for a (more) detailed description.

9.14 Abbreviation list

1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Sound
2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature-box
AM	Amplitude Modulation
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AR	Aspect Ratio: 4 by 3 or 16 by 9
Artistic	See OTC 2.5: main processor
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars but without throwing away video information
ATV	See Auto TV
AUDIO_C	Audio Centre
AUDIO_L	Audio Left
AUDIO_R	Audio Right
AUDIO_SL	Audio Surround Left
AUDIO-SR	Audio surround right
AUDIO_SW	Audio Subwoofer
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
B/G	System B and G
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
CL	Constant Level: audio output to connect with an external amplifier
CBA	Circuit Board Assembly (or PWB, or PCB)
ComPair	Computer aided rePair
CSM	Customer Service Mode
CTI	Color Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-TER	CVBS terrestrial
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Direction For Use: description for the end user
DNR	Digital Noise Reduction: noise reduction feature of the box
DPL	Dolby ProLogic
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode
DVD	Digital Versatile Disc
DVI	Digital Visual Interface

DW	Double Window
Eagle	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical direction, CTI and other color features
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EXT	External (source), entering the set via SCART or via cinches
FALCONIC	SAA4992H, Feature Box IC performing Digital Natural Motion, 3DNR, and vertical zoom and vertical peaking
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-PIP	The fast blanking signal for PIP
FBL-TXT	The fast blanking signal for TXT. It has a higher priority than FBL-PIP
FBX	Feature Box: part of small signal / separate module which contains 100 Hz processing, extra featuring and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle)
FDS	Full Dual Screen
FHP	Fujitsu Hitachi Plasma display Ltd.
FLASH	Flash memory
FM	Field Memory or Frequency Modulation
G-TXT	Green teletext
GND-DRIVE	A separate ground for the line drive towards the line driver
H	H_sync to the module
HD	High Definition
HD at HOME	A signal from the OTC, to switch the HOP to the Pixel Plus standard (75 Hz frame)
HDMI	High Definition Multimedia Interface, digital audio and video interface
HIP	High-end video Input Processor (TDA9320): video and chroma decoder of EM5E
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I^2C	Integrated IC bus
I^2S	Integrated IC Sound bus
IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in 'pairs', causing line flicker
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
Last Status	The settings last chosen by the customer, read, and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LPL	LG-Philips LCD
LNA	Low Noise Adapter
LORE	LOcal REgression based noise reduction
LS	LoudSpeaker
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MSP	Multi-standard Sound Processor: ITT sound decoder of EM5E
MUTE	Mute-Line
NAFTA	North American Free Trade Association: Trade agreement between Canada, USA and Mexico
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe.
NTSC	National Television Standard Committee. Color system used mainly in North America and Japan. Color carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
OTC	On screen display Teletext and Control; also named Artistic (SAA5800)
P50	Project 50 communication: protocol between TV and peripherals
PAL	Phase Alternating Line. Color system used mainly in Western Europe (color carrier = 4.433619 MHz) and South America (color carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB, or CBA)
PDP	Plasma Display Panel
PICNIC	Peripheral Integrated Combined Network IC (SAA4978): main IC for 100 Hz featuring and feature processing
PIP	Picture In Picture
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PWB	Printed Wiring Board (or PCB, or CBA)
RAM	Random Access Memory
R-TXT	Red teletext
RC	Remote Control transmitter
RC5 (6)	Remote Control system 5 (6), the signal from the remote control receiver
RGB	Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced.
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
SIF	Sound Intermediate Frequency
SC	SandCastle: two-level pulse derived from sync signals
S/C	Short Circuit
SCL-F	Clock signal on fast I^2C bus
SD	Standard Definition
SDA-F	Data signal on fast I^2C bus
SDI	Samsung Display Industry
SDM	Service Default Mode
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Color system used mainly in France

	and Eastern Europe. Color carriers = 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SNERT	Synchronous No parity Eight bit Reception and Transmit
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SSB/SSP	Small Signal Board/Panel
STBY	Standby
SW	Subwoofer
TXT	Teletext
TXT-DS	Teletext Dual Screen
TXT-KILL	To kill the TXT picture to insert a PIP. It has a higher priority than FBL-TXT.
uP	Microprocessor
U100	U from Feature Box
V100	V from Feature Box
VDS	Virtual Dolby Surround
VGA	Video Graphics Array
VL	Variable Level out: processed audio output towards external amplifier
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
Y100	Y from Feature Box
YUV-Feat	The YUV input for the main picture, coming from the Feature box or the HIP

9.15 IC Data Sheets

In this paragraph, the internal block diagrams and pinning are given of ICs that are drawn as a 'black box' in the electrical diagrams (with the exception of 'memory' and 'logic' ICs).

9.15.1 Diagram A2, TNY256 (IC7500)

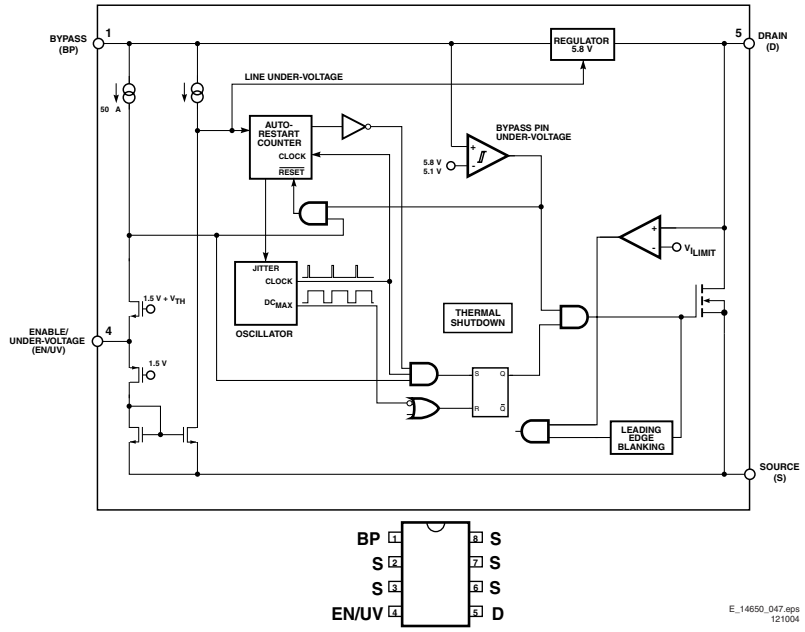


Figure 9-12 Internal block diagram and pin configuration

9.15.2 Diagram A5, MC33368 (IC7650)

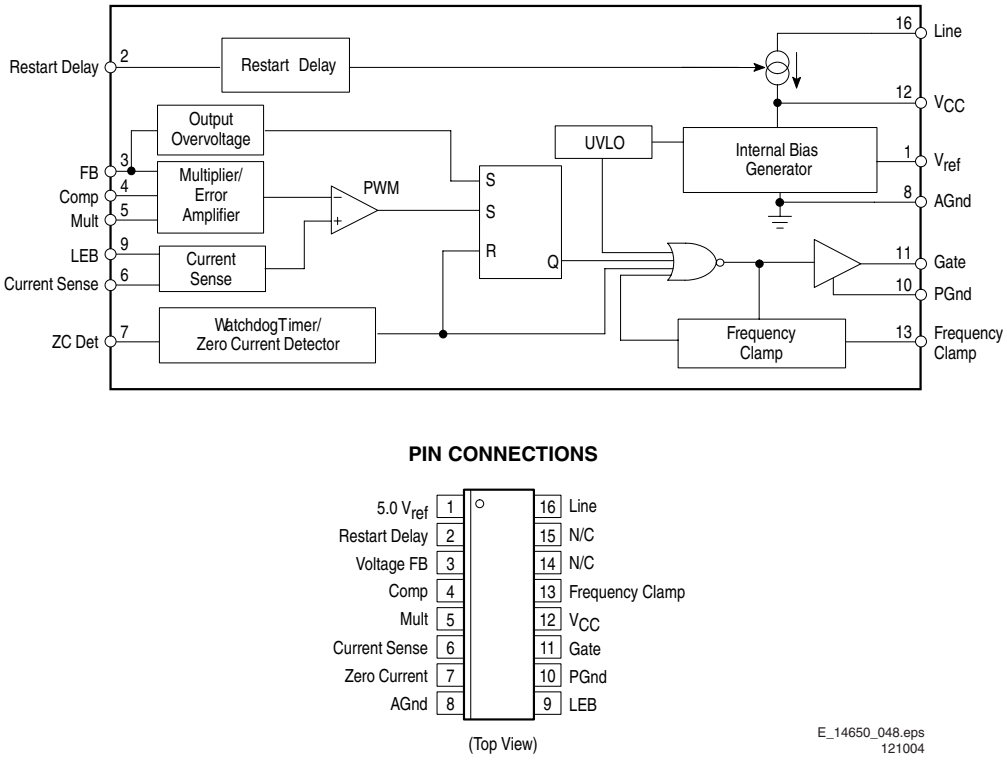


Figure 9-13 Internal block diagram and pin configuration

9.15.3 Diagram A7, TEA1507 (IC7112 and IC7212)

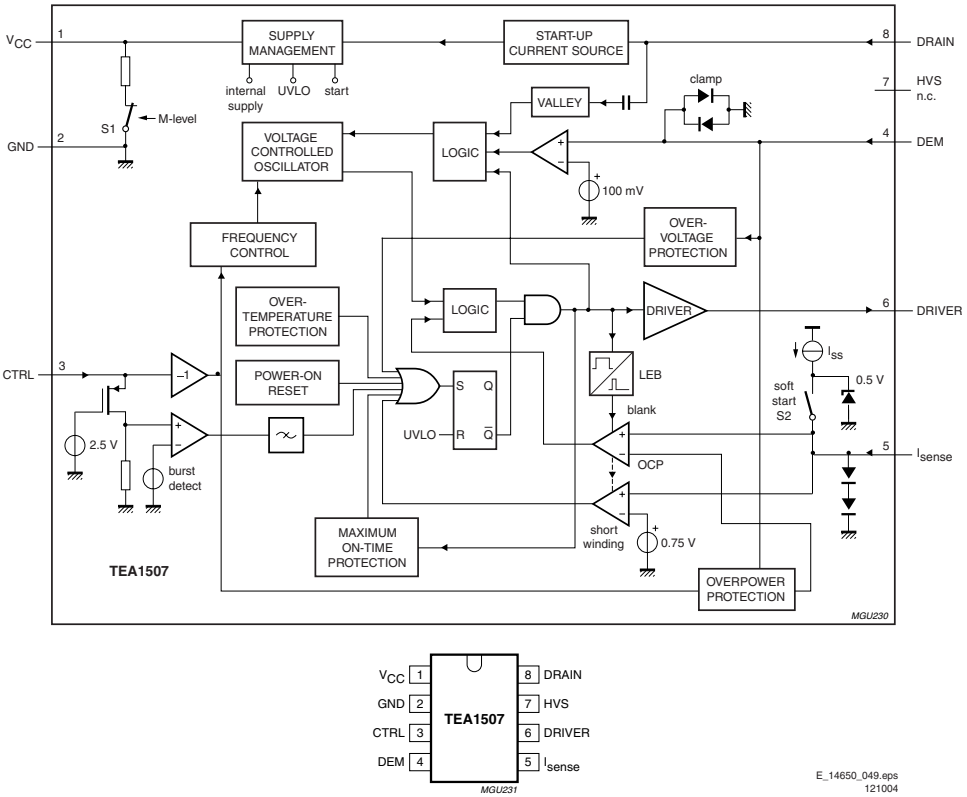
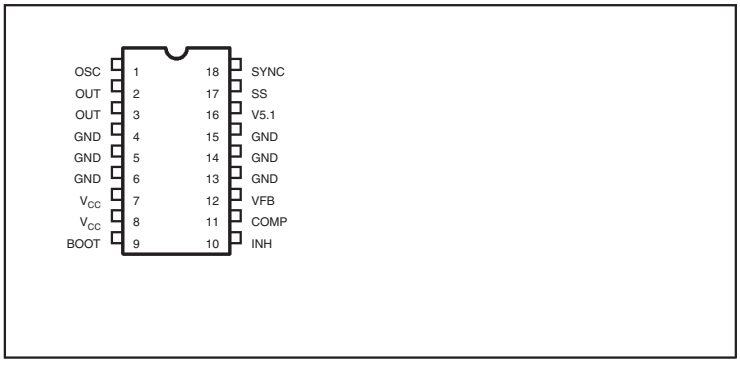
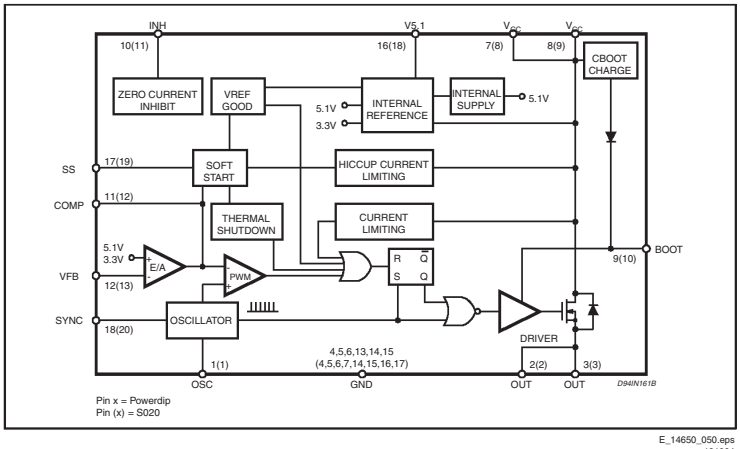


Figure 9-14 Internal block diagram and pin configuration

9.15.4 Diagram A7, L4973V (IC7260)



BLOCK DIAGRAM

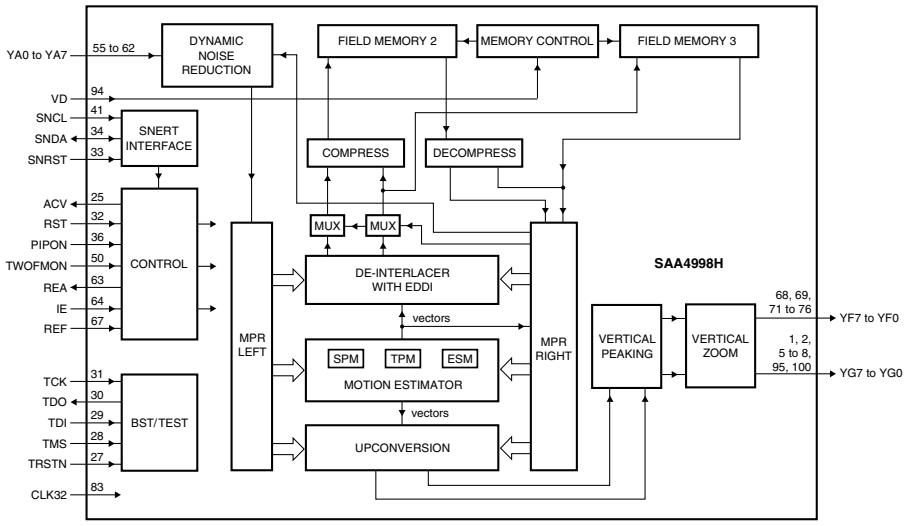


E_14650_050.eps
121004

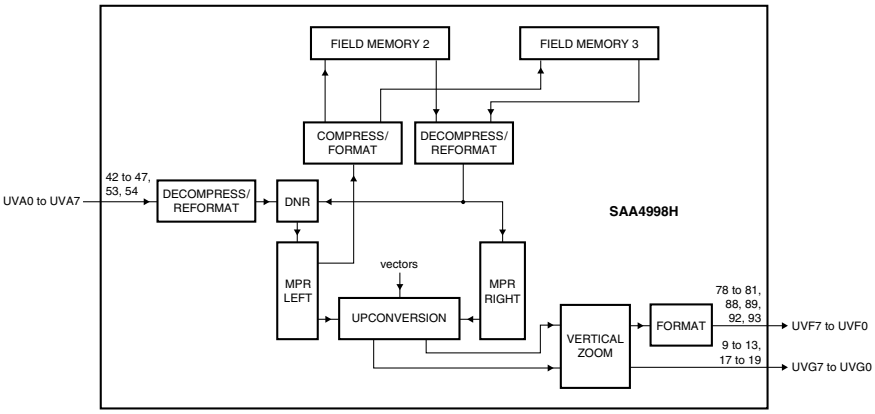
Figure 9-15 Internal block diagram and pin configuration

9.15.5 Diagram B3B, SAA4998 (IC7760)

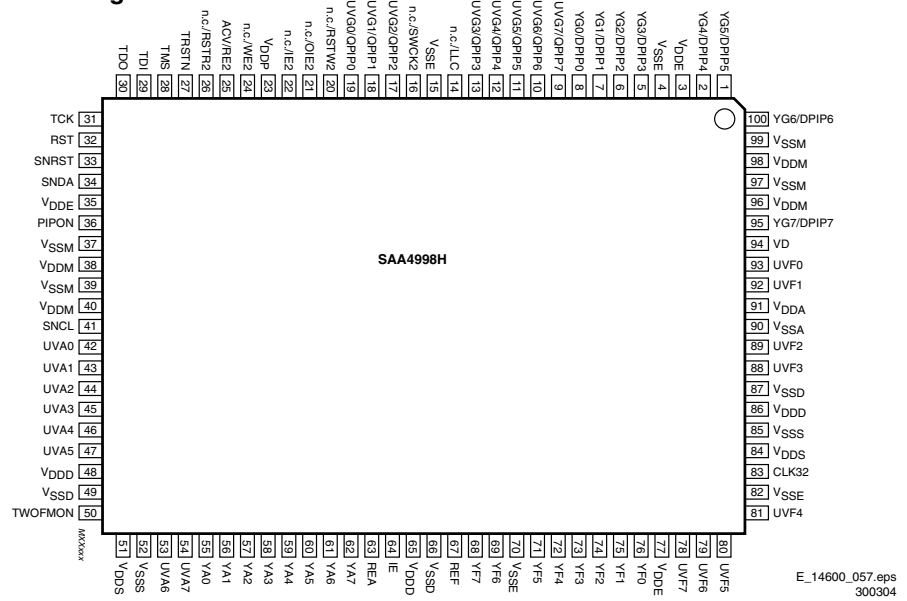
Block diagram of the luminance part in full FALCONIC mode.



Block diagram of the chrominance part in full FALCONIC mode.



Pin configuration



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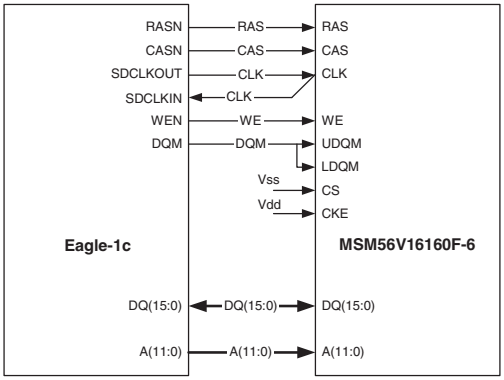
300304

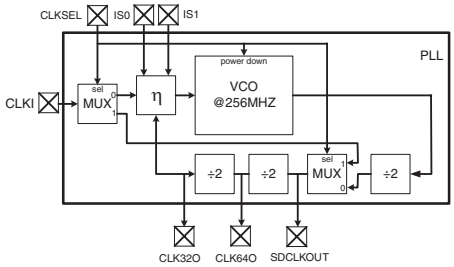
Figure 9-16 Internal Block Diagram and Pin Configuration.

9.15.6 Diagram B3C, T6TX5EF (IC7720)

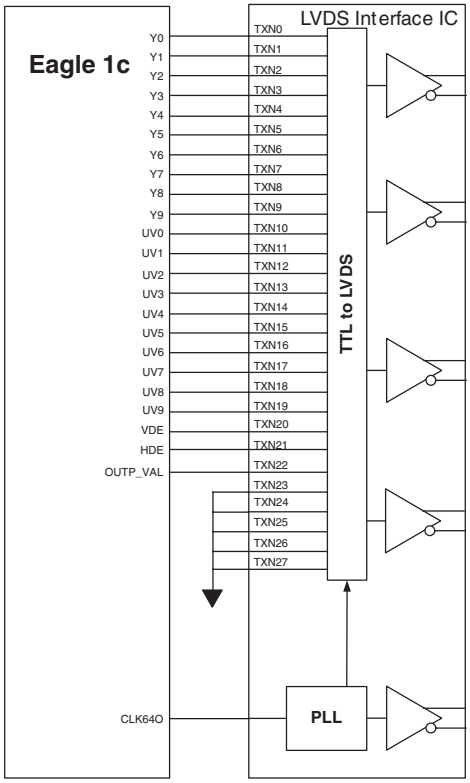
Interface between Eagle and External SDRAM

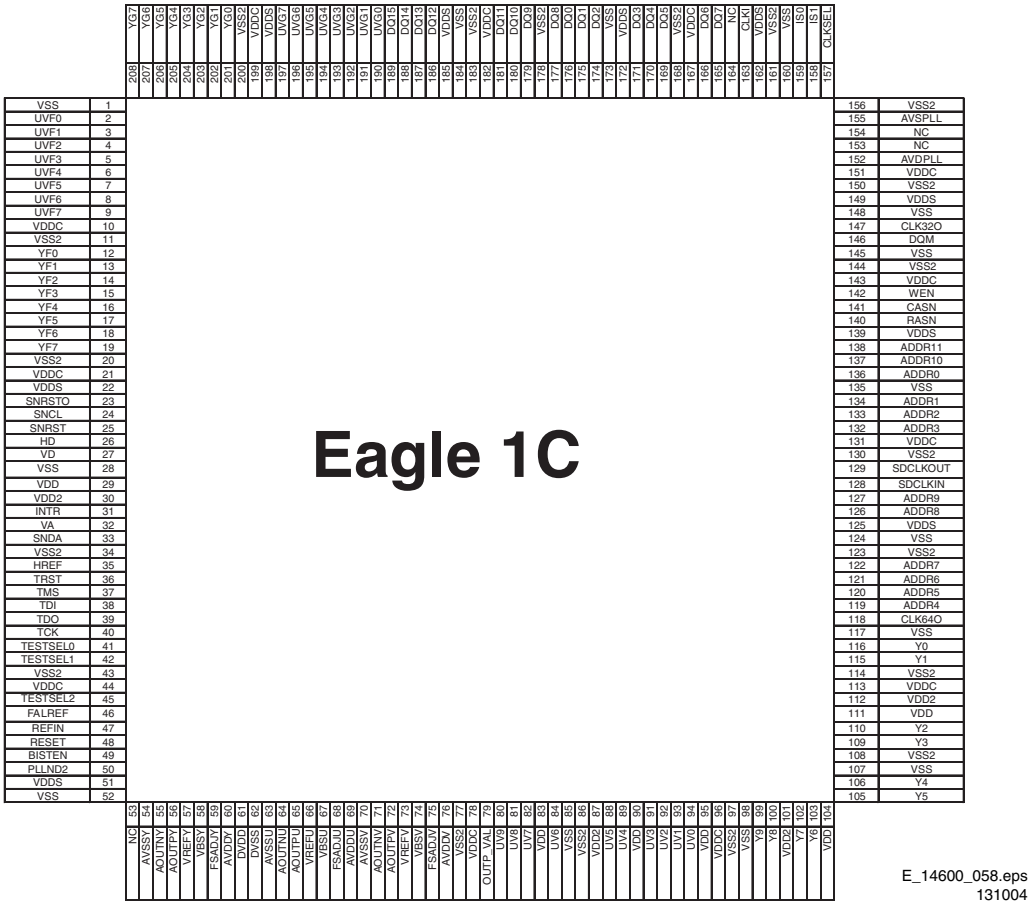


Internal Clock generation



EAGLE IC digital output interface to LVDS device

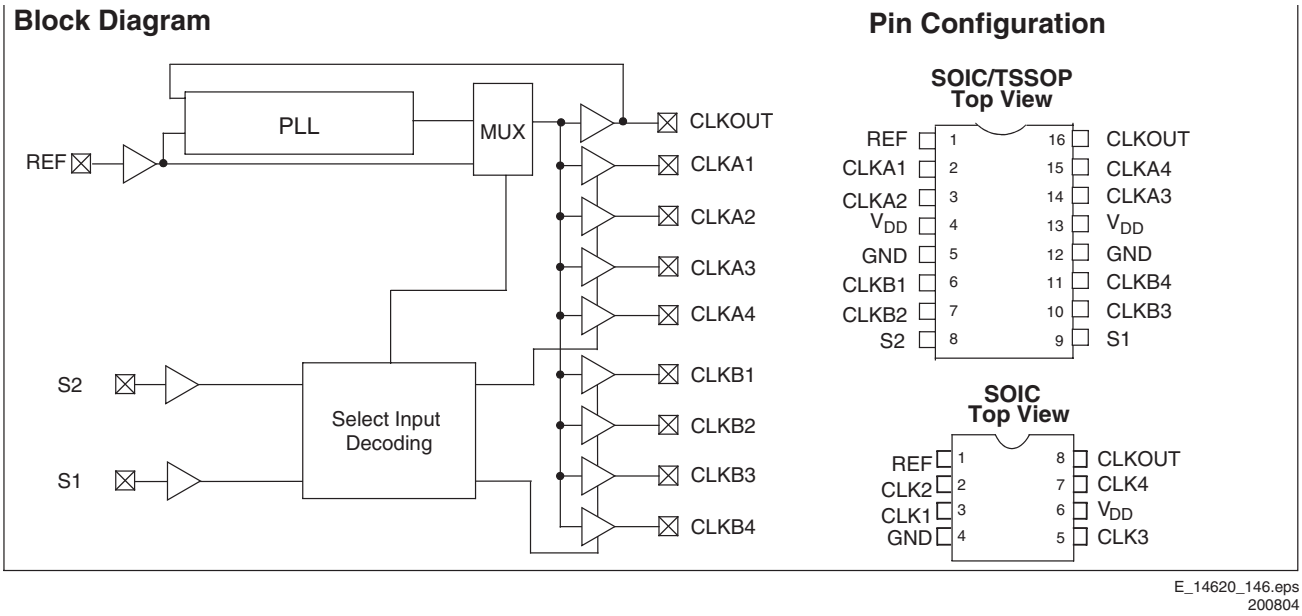




E_14600_058.eps
131004

Figure 9-17 Internal block diagram and pin configuration

9.15.7 Diagram B3C, CY2305SC-1 (IC7721)



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200804

Figure 9-18 Internal block diagram and pin configuration

9.15.8 Diagram B3D, T6TU5XB (IC7752)

Figure 1 Package outline (top view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	WEB/ DAVB	UVA0 /Di0	UVA2 /Di2	UVA4 /Di4	UVA6 /Di6	UVA8 /Di8	SEL656	TST1	YA2	YA4	YA6	YA8	VA	HREF	SDA	A
B	YB8	VSS	UVA1 /Di1	UVA3 /Di3	UVA5 /Di5	UVA7 /Di7	YA0 /Di9	BISTEN	YA1	YA3	YA5	YA7	WEA/ DAVA	VSS	SCL	B
C	YB7	YB6	VSS	VDDS	VSS	VSS	VDDC	VDDC	VSS	VSS	VDDC	VDDS	VSS	SNDA	SNRST	C
D	YB5	YB4	VDDC	N.C.									VSS	SNCL	TCK	D
E	YB3	YB2	VSS										VDDC	TMS	TDO	E
F	TST2	YB1	VSS										VSS	TRST	TDI	F
G	CLKASB	YB0 /Do9	VDDS				COLUMBUS TOP-VIEW						VDDS	A0ICC	RESET	G
H	CLKASA	UVB8/ Do8	TST3										VDDC	CLK EXT	CLKSEL	H
J	UVB7 /Do7	UVB6/ Do6	VSS				PPA Version 2.7						VSS	CLK	WEN	J
K	UVB5 /Do5	UVB4/ Do4	VDDC										VSS	CASN	RASN	K
L	UVB3 /Do3	UVB2 /Do2	VSS										VDDS	DQM	DQ16	L
M	UVB1 /Do1	UVB0 /Do0	VDDS										VSS	DQ14	DQ15	M
N	AVD	N.C.	VDDS	VSS	VSS	VDDC	VSS	VDDS	VDDC	VSS	VDDS	VSS	VSS	VDDS	DQ13	N
P	AVS	VSS	A7	A9	A2	A0	A11	DQ7	DQ6	DQ4	DQ3	DQ1	VDDS	VSS	DQ12	P
R	A4	A5	A6	A8	A3	A1	A10	DQ8	VSS	DQ5	VSS	DQ2	DQ9	DQ10	DQ11	R
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

E_14600_059.eps
200804

Figure 9-19 Pin Configuration

9.15.9 Diagram B6B, MAS3528E (IC7A30)

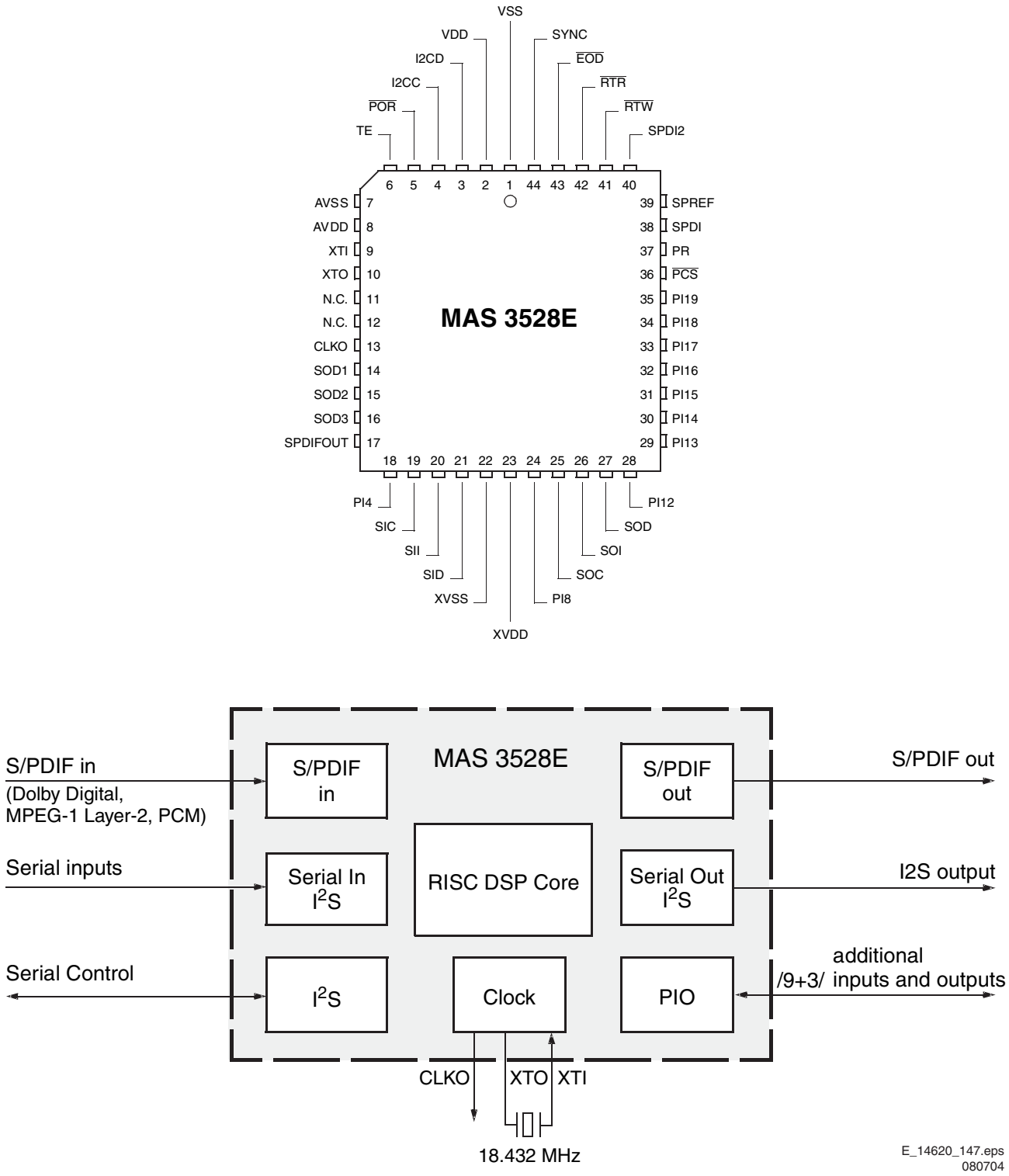
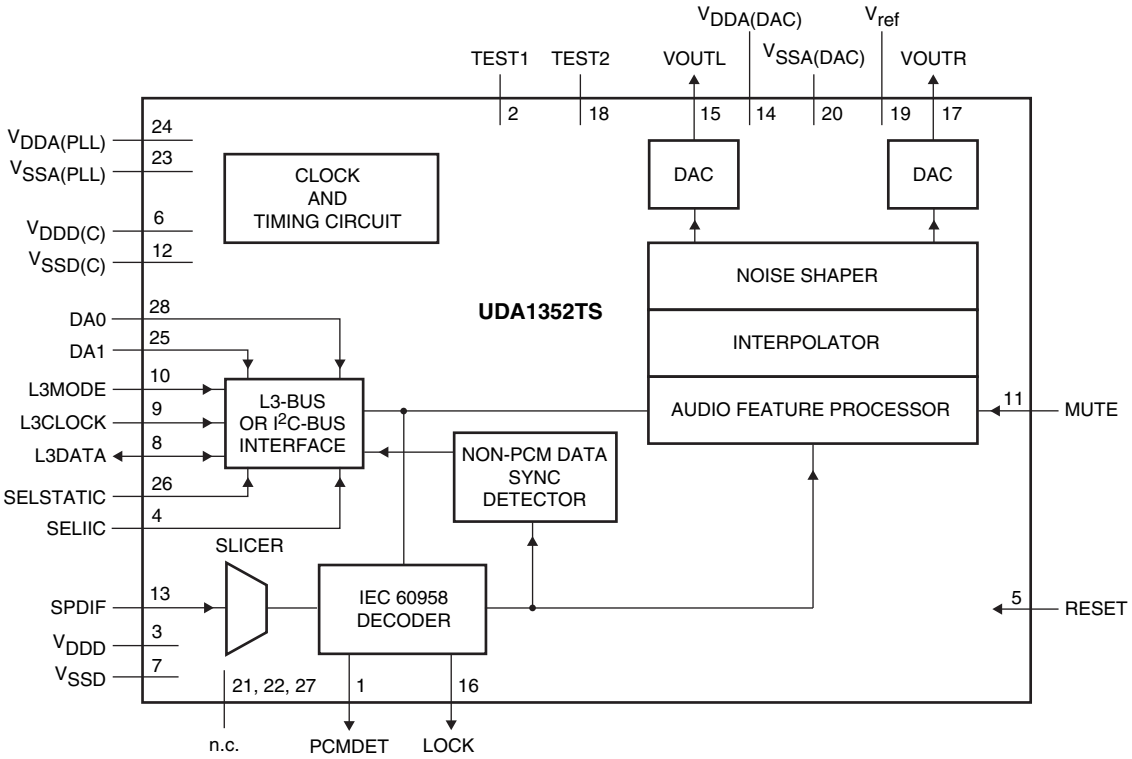


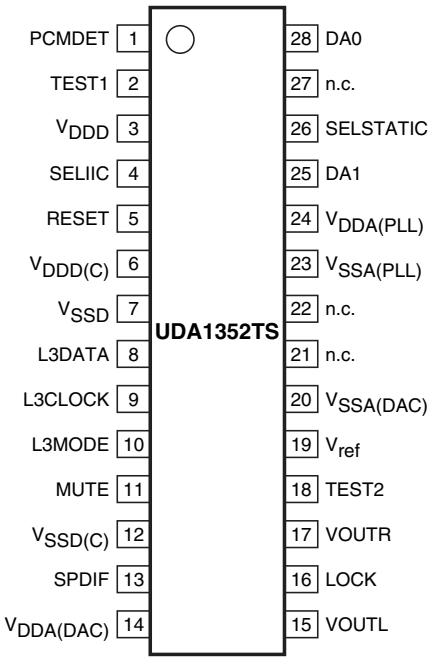
Figure 9-20 Internal block diagram and pin configuration

9.15.10 Diagram B14D, UDA1352TS (IC7I25)

BLOCK DIAGRAM



PIN CONFIGURATION

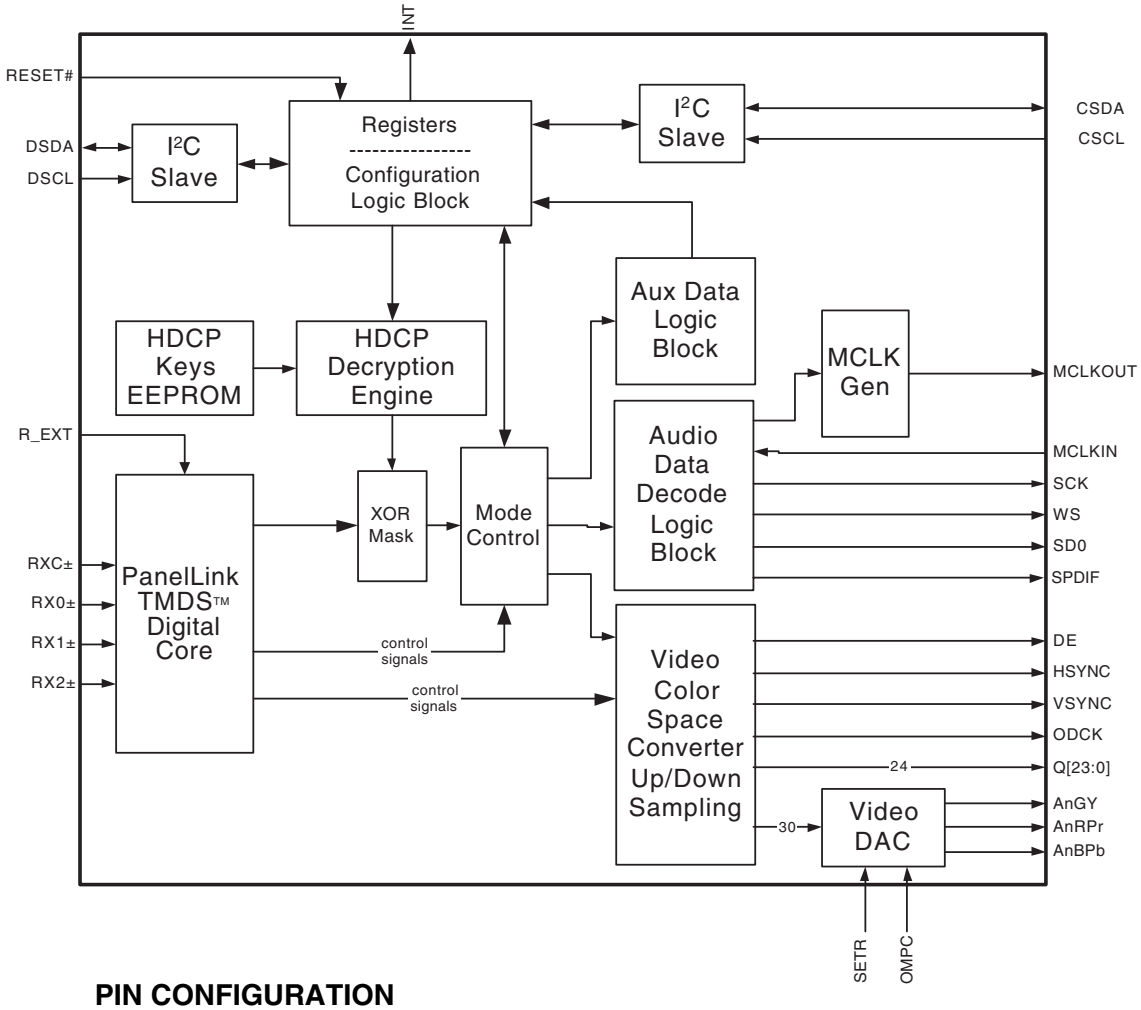


E_14620_148.eps
080704

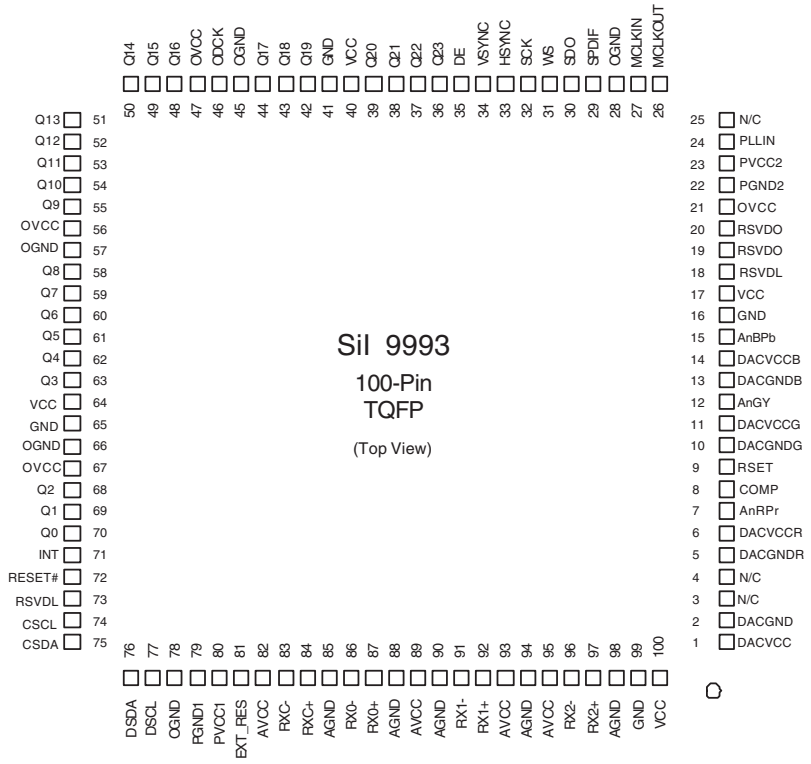
Figure 9-21 Internal block diagram and pin configuration

9.15.11 Diagram B14F, Sil9993CT100 (IC7I18)

BLOCK DIAGRAM



PIN CONFIGURATION

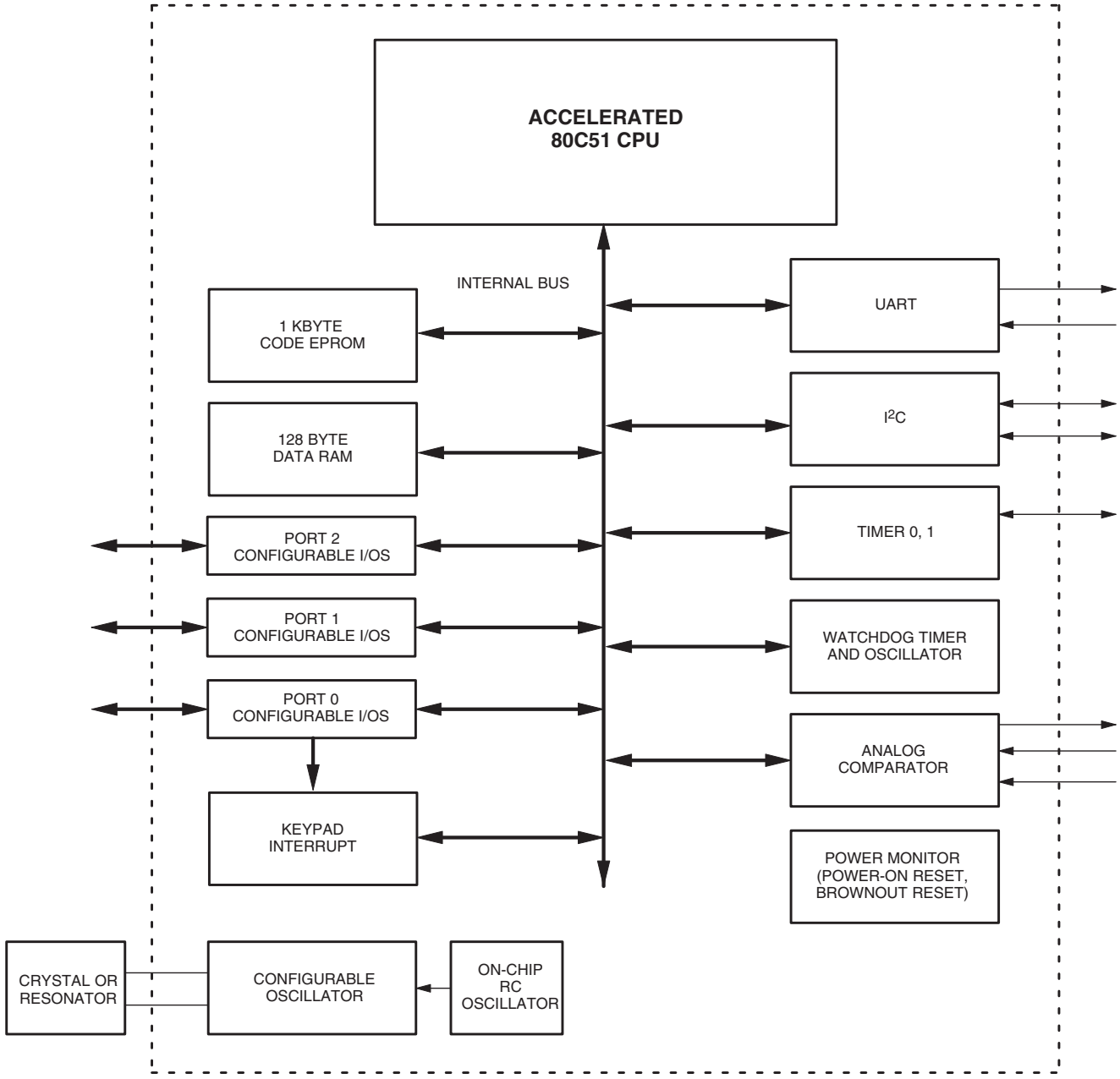


E_14620_149.eps
090804

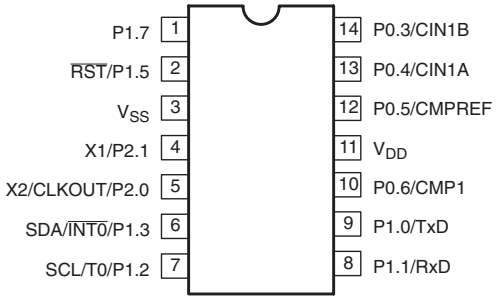
Figure 9-22 Internal block diagram and pin configuration

9.15.12 Diagram J, P87LPC760BDH (IC7075)

BLOCK DIAGRAM



PIN CONFIGURATION



E_14620_150.eps
200804

Figure 9-23 Internal block diagram and pin configuration

10. Spare Parts List

Set Level

Various

0111	3104 303 11991	Therm foam 15x10mm
0112	3104 303 12001	Therm foam 50x10mm
0174	3104 304 27331	Ambi light fake cover 500
0175	3104 328 30683	Ambient light 500L
0175	3104 328 33222	Ambient Light Assy 600 L
0175	3104 328 33223	Ambient light 600L
0176	3104 328 33343	Ambient light 600R
0176	3104 328 33342	Ambient Light Assy 600 R
0176	3104 328 35023	Ambient light 500R
0210	3104 328 32451	Shield frame 42"
1004▲	8204 000 77251	PDP S50HW-XDO3
1004▲	8204 000 77271	PDP S42AX-XDO2
1004▲	8204 000 77371	PDP FPF42C128128UC
1004▲	9322 207 06682	PDP FPF42C128128UC
1004▲	9322 215 25682	PDP S42AX-XD03
1004	9322 215 26682	PDP S50HW-XD03
1012	3104 328 32471	Mains Switch panel
1050	3104 328 28901	Supply PDP FHP 2K4
1074	3104 328 28911	Audio PDP 2K4
1089	3104 328 36643	BU Ambient light
1089▲	3104 328 36751	Inv. board AC1437J-100
1102	3104 328 31501	SSB 42" SDI US
1102	3104 328 31531	SSB 42" FHP US
1102	3104 328 31551	SSB 50" SDI US
1102	3104 328 31561	SSB 50" SDI US
1114	3104 328 31641	Step LC knobframe
1116	3104 328 32461	Side I/O assy
1116	3104 328 33241	Side I/O assy US
8202	3104 311 06811	Cable 9P/340/9P
8202	3104 311 08651	Cable 9p/340/9p
8302	3104 301 09771	Cable 7p/140/7p
8302	3104 311 01281	Cable 7P/820/7P
8302	3104 311 07591	Cable 7P/820/7P
8302	3104 311 08641	Cable 7P/240/7P
8302	3104 311 08931	Cable 7P/1000/7P
8306	3104 311 03801	Cable 6P/280/6P
8310	3104 311 06631	Cable 4P/480/4P
8310	3104 311 07221	Cable 4P/680/4P
8310	3104 311 08711	Cable 4P/820/4P
8310	3104 311 08721	Cable 4P/680/4P
8311	8204 000 77031	Cable 3P+3P11/1320/3P
8313	8204 000 76971	Cable 3P+3P11/150/3P
8323	3104 311 04221	Cable 10p/220/10p Wh
8350	3104 311 08081	Cable 31P/350/30P
8350	3104 311 08831	Cable 31P/300/31P
8350	8204 000 76832	Cable 31P/400/30P
8350	8204 000 76852	Cable 31P/330/31P
8911	3104 311 07911	Cable ring/180/ring
8920	3104 311 08702	Wire ring/60/POSI

PDP Supply Panel FHP [A]

Various

0008▲	4822 265 11253	Fuse holder
0010	3122 421 60171	Spring
0011	3122 421 60171	Spring
0015	4822 695 00005	Insulating plate
0016	3122 121 67211	Clip max247
0017	3122 121 67201	Clip large
0020	3122 121 67191	Clip small
0021	3122 121 67191	Clip small
0022	3122 121 67191	Clip small
0023	3122 121 67191	Clip small
0024	3122 121 67191	Clip small
0025	3122 121 67191	Clip small
0026	3122 121 67191	Clip small
0206	3104 308 78231	Transistor cooling clip
0306	2422 025 08149	Connector 6p m
0307	2422 025 17759	Connector 20p f
0308▲	4822 265 20723	Connector 2p
0311	2422 025 10769	Connector 9p m
0323	2422 025 15085	Connector 10p m
0341	3104 301 24561	Spring
0342	4822 267 10618	Connector 7p
0352	4822 267 10618	Connector 7p
1002	2422 025 11244	Connector 7p m
1004▲	9965 000 07788	Fuse T2A 250V
1082▲	4822 071 52502	Fuse 2.5A
1083▲	4822 071 52502	Fuse 2.5A
1084▲	2422 086 10849	Fuse 1A F 250V
1110▲	4822 071 55002	Fuse T5A 250V
1200▲	9965 000 07788	Fuse T2A 250V
1260	4822 252 51186	Fuse 2A
1400▲	4822 253 30467	Fuse 6.3A
1402▲	4822 252 60151	Surge protect
1450▲	4822 280 10382	SDT-SS-109DM
1460▲	4822 280 10382	SDT-SS-109DM
1701	2422 549 00112	Line filt. 50V 3A
1702	2422 549 00112	Line filt. 50V 3A
1735	2422 025 10768	Connector 3p m
1735	4822 267 10918	Connector 3p
1736	2422 025 10768	Connector 3p m
1739	2422 025 10769	Connector 9p m
1M02	2422 025 11244	Connector 7p m
1M10	2422 025 09406	Connector 4p m

⊣⊢

2000▲	2252 811 95017	470pF 10% 250V
2001	2222 338 22474	470nF 20% 275V
2002	3198 030 72290	22µF 20% 35V
2003	4822 124 12056	1000µF 20% 35V
2004	2238 867 18101	100pF 1% 50V 0603
2005	2238 867 18101	100pF 1% 50V 0603
2006	2020 552 96618	1nF 10% 50V 0402
2007	2238 586 59812	100nF 20% 50V 0603
2008	5322 126 11583	10nF 10% 50V 0603
2009	3198 030 82280	2.2µF 20% 50V
2010	5322 126 11583	10nF 10% 50V 0603
2011	2022 333 00124	15nF 5% 1.6kV
2012	4822 126 11254	330pF 10% 2kV
2013	4822 126 11254	330pF 10% 2kV
2014	4822 126 13862	1.5nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	3198 030 82280	2.2µF 20% 50V
2017	2022 333 00124	15nF 5% 1.6kV
2018	2238 867 18101	100pF 1% 50V 0603
2019▲	2020 554 90169	470pF 10% 250V
2020	2020 024 90737	3300µF 20% 100V
2021	2020 024 90737	3300µF 20% 100V
2022	2020 021 91354	1000µF 20% 50V
2022	4822 124 41184	470µF 20% 50V
2023	2222 580 15649	100nF 10% 50V 0805
2024	3198 035 03320	3.3nF 5% 50V 0402
2025	2222 365 85224	220nF 10% 100V
2025	4822 124 12084	1µF 20% 50V
2026	2020 552 96623	2.2nF 10% 50V 0402
2027	3198 017 31530	15nF 20% 50V 0603
2028	2238 930 11541	220pF 5% 200V
2029	2238 930 11541	220pF 5% 200V
2030	2238 586 59812	100nF 20% 50V 0603
2031	4822 124 12084	1µF 20% 50V
2032	2020 552 96831	22nF 10% 50V
2033	2238 586 59812	100nF 20% 50V 0603
2034	4822 126 14525	47pF 5% 1kV
2035	2020 552 96618	1nF 10% 50V 0402
2036	2020 552 96831	22nF 10% 50V
2037	4822 126 14525	47pF 5% 1kV
2038	3198 016 31020	1nF 25V 0603
2040	2238 586 59812	100nF 20% 50V 0603
2044	2238 930 11541	220pF 5% 200V
2045	2238 930 11541	220pF 5% 200V
2050	2222 580 15649	100nF 10% 50V 0805
2050	5322 122 32654	22nF 10% 63V 0805
2054	2238 869 15221	220pF 1% 50V 0402
2055	4822 126 14247	1.5nF 50V 0603
2056	2238 869 15221	220pF 1% 50V 0402
2057	4822 126 14247	1.5nF 50V 0603
2058	4822 124 40756	1µF20% 100V
2059	2238 586 59812	100nF 20% 50V 0603
2061	2238 586 59812	100nF 20% 50V 0603
2090	2020 021 91729	4.7µF 20% 35V
2111	2238 869 15221	220pF 1% 50V 0402
2112	2020 552 96618	1nF 10% 50V 0402
2113	4822 124 12379	220µF 25V
2114	2020 552 96683	220nF 10% 50V
2115	2020 552 96628	10nF 10% 16V 0402
2117	2222 780 15656	330nF 10% 16V
2118	4822 126 13449	1nF 10% 2kV
2121	2020 024 90736	2200µF 20% 100V
2122	4822 121 51319	1µF 10% 63V
2123	3198 035 03320	3.3nF 5% 50V 0402
2126	2238 586 59812	100nF 20% 50V 0603
2133	4822 124 81151	22µF 50V
2138	2022 552 05679	1µF 10% 16V 0805
2203	2238 586 59812	100nF 20% 50V 0603
2205	3198 030 82280	2.2µF 20% 50V
2210	4822 124 80151	47µF 16V
2211	2238 869 15221	220pF 1% 50V 0402
2212	2020 552 96326	220nF 10% 16V
2213	4822 126 10206	2.2nF 10% 500V
2213	5322 126 10223	4.7nF 10% 63V
2214	5322 126 10223	4.7nF 10% 63V
2217	2222 780 15656	330nF 10% 16V
2218	2022 333 00106	3.3nF 5% 1.6kV
2222	2238 869 15101	100pF 5% 50V 0402
2223	2238 869 15101	100pF 5% 50V 0402
2225	2020 021 91551	2200µF 20% 25V
2226	2238 586 59812	100nF 20% 50V 0603
2227	2238 869 15101	100pF 5% 50V 0402
2229	4822 124 80791	470µF 20% 16V
2230	4822 124 80791	470µF 20% 16V
2231	4822 124 80151	47µF 16V
2232	2238 869 15101	100pF 5% 50V 0402
2234	2022 552 05679	1µF 10% 16V 0805
2236	4822 124 23002	10µF 16V
2237	4822 124 23002	10µF 16V
2260	2022 552 05679	1µF 10% 16V 0805
2261	3198 026 51020	1000µF 50V
2261	4822 124 41184	470µF 20% 50V
2262	2020 552 96683	220nF 10% 50V
2263	2222 861 15272	2.7nF 5% 50V 0805
2264	4822 126 14583	470nF 10% 16V 0805
2265	4822 126 14241	330pF 0603 50V
2266	2238 916 15641	22nF 10% 25V 0603
2266	3198 030 74780	4u7 20% 35V
2267	5322 122 32531	100pF 5% 50V
2268	2020 552 96683	220nF 10% 50V
2269	2020 021 91524	220µF 20% 25V
2269	4822 123 14025	2200µF 20% 16V
2270	4822 124 40433	47µF 20% 25V
2273	2238 586 59812	100nF 20% 50V 0603
2290	5322 126 11583	10nF 10% 50V 0603
2291	2238 869 15221	220pF 1% 50V 0402
2292	3198 026 51020	1000µF 50V
2293	2238 869 15221	220pF 1% 50V 0402
2294	3198 026 51020	1000µF 50V
2303	2020 552 96683	220nF 10% 50V
2304	2020 552 96618	1nF 10% 50V 0402
2305	2238 586 59812	100nF 20% 50V 0603
2306	2238 586 59812	100nF 20% 50V 0603
2316	2238 586 59812	100nF 20% 50V 0603
2322	2238 586 59812	100nF 20% 50V 0603
2324	2238 586 59812	100nF 20% 50V 0603
2343	3198 030 82280	2.2µF 20% 50V
2350	4822 124 12095	100µF 20% 16V
2352	2238 586 59812	100nF 20% 50V 0603
2364	2238 586 59812	100nF 20% 50V 0603
2366	4822 126 14585	100nF 10% 0805 50V
2376	2238 586 59812	100nF 20% 50V 0603
2380	2238 586 59812	100nF 20% 50V 0603
2381	2238 586 59812	100nF 20% 50V 0603
2385	2022 552 05679	1µF 10% 16V 0805
2393	2238 586 59812	100nF 20% 50V 0603
2396	2020 552 96683	220nF 10% 50V
2400▲	2222 338 22474	470nF 20% 275V
2401▲	2222 338 22474	470nF 20% 275V
2404	4822 126 14525	47pF 5% 1kV
2405▲	2252 811 95017	470pF 10% 250V
2406	4822 126 14525	47pF 5% 1kV
2407▲	2252 811 95017	470pF 10% 250V
2465	4822 124 12095	100µF 20% 16V
2502	2238 869 15101	100pF 5% 50V 0402
2503	2020 024 90708	47µF 400V 20%
2504	2020 552 96618	1nF 10% 50V 0402
2505	4822 124 12056	1000µF 20% 35V
2507	2238 869 15101	100pF 5% 50V 0402
2508	4822 124 12095	100µF 20% 16V
2509	2238 869 15101	100pF 5% 50V 0402
2510	2020 021 91506	1000µF 20% 16V
2511	2238 586 59812	100nF 20% 50V 0603
2512	2238 586 59812	100nF 20% 50V 0603
2513	2222 580 15649	100nF 10% 50V 0805
2531	4822 124 23002	10µF 16V
2532	4822 124 12095	100µF 20% 16V
2533	4822 124 12095	100µF 20% 16V
2540	4822 124 12095	100µF 20% 16V
2541	4822 124 12095	100µF 20% 16V
2600	4822 122 33799	1nF 10% 1kV
2601	4822 122 33799	1nF 10% 1kV
2602	2020 552 96618	1nF 10% 50V 0402
2603	2222 383 90136	1µF 5% 400V
2605	2222 383 90136	1µF 5% 400V
2605	2222 479 90086	1µF 400V 5%
2608	2020 552 96618	1nF 10% 50V 0402
2610	2022 333 00298	1.8nF 5% 2kV
2611	2022 333 00296	220pF 5% 2kV
2612	2020 552 96618	1nF 10% 50V 0402
2614	5322 126 11578	1nF 10% 50V 0603
2616	4822 124 12415	220µF 20% 400V

2617	4822 124 12415	220µF 20% 400V
2640	3198 035 04710	470pF 50V 0402
2642	2020 552 96618	1nF 10% 50V 0402
2651	5322 126 11583	10nF 10% 50V 0603
2653	4822 126 14241	330pF 0603 50V
2654	4822 124 80151	47µF 16V
2655	2022 552 05679	1µF 10% 16V 0805
2656	2222 580 15649	100nF 10% 50V 0805
2660	4822 126 13881	470pF 5% 50V
2661	2020 552 96618	1nF 10% 50V 0402
2662	4822 124 80061	1000µF 20% 25V
2663	4822 124 40255	100µF 20% 63V
2664	4822 124 40255	100µF 20% 63V
2665	4822 126 13881	470pF 5% 50V
2666	2020 552 96793	4.7nF 10% 50V 0402
2670	2238 586 59812	100nF 20% 50V 0603
2671	2238 586 59812	100nF 20% 50V 0603
2672	2222 580 15649	100nF 10% 50V 0805
2673	2020 558 00002	4.7nF 10% 630V
2674	2020 558 90621	10nF 630V
2675	2020 558 90621	10nF 630V
2701	2020 552 94427	100pF 5% 50V
2702	5322 126 11578	1nF 10% 50V 0603
2704	5322 126 11578	1nF 10% 50V 0603
2705	2020 552 96684	470nF 10% 25V 0805
2706	2222 580 15649	100nF 10% 50V 0805
2707	4822 126 14585	100nF 10% 0805 50V
2708	2020 552 96326	220nF 10% 16V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	5322 126 11578	1nF 10% 50V 0603
2712	2020 552 96684	470nF 10% 25V 0805
2713	2020 552 96684	470nF 10% 25V 0805
2714	3198 017 33330	33nF 20% 16V 0603
2714	4822 126 14549	33nF 16V 0603
2715	5322 126 11578	1nF 10% 50V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	4822 122 33761	22pF 5% 50V
2719	5322 126 11578	1nF 10% 50V 0603
2720	2020 552 96326	220nF 10% 16V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2724	2020 552 96684	470nF 10% 25V 0805
2726	3198 017 33330	33nF 20% 16V 0603
2726	4822 126 14549	33nF 16V 0603
2727	5322 126 11578	1nF 10% 50V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2730	2020 552 96684	470nF 10% 25V 0805
2764	4822 126 14491	2.2µF 10V 0805
2766	4822 126 14491	2.2µF 10V 0805
2768	4822 124 40255	100µF 20% 63V
2769	4822 124 40255	100µF 20% 63V
2777	2020 552 96683	220nF 10% 50V
2778	4822 124 40769	4.7µF 20% 100V
2779	2020 552 96683	220nF 10% 50V
2780	2020 552 96683	220nF 10% 50V
2781	2020 552 96683	220nF 10% 50V
2783	4822 124 81151	22µF 50V
2786	2238 586 15641	22nF 10% 50V 0603
2788	4822 124 40255	100µF 20% 63V
2789	2020 552 96684	470nF 10% 25V 0805
2790	4822 124 40255	100µF 20% 63V

–WW–

3003	4822 117 13632	100kΩ 1% 0603 0.62W
3004	3198 031 01530	15kΩ 5% 0.01W 0402
3005	4822 117 13603	33kΩ 5% 0402
3006	4822 051 30103	10kΩ 5% 0.062W
3007	3198 031 04720	4.7kΩ 5% 0402
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	3198 031 01530	15kΩ 5% 0.01W 0402
3011	4822 051 30561	560Ω 5% 0.062W
3012	3198 031 04720	4.7kΩ 5% 0402
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 050 23309	33Ω 1% 0,6W
3015	4822 050 21009	10Ω 1% 0.6W
3016	4822 051 10102	1kΩ 2% 0.25W
3017	4822 050 23309	33Ω 1% 0,6W
3018	4822 050 21009	10Ω 1% 0.6W
3019	4822 051 10102	1kΩ 2% 0.25W
3020	3198 031 05630	56kΩ 5% 0402
3021	4822 053 11688	6.8Ω 5% 2W
3022	4822 051 30331	330Ω 5% 0.062W
3023	3198 031 04730	47Ω 5% 0402
3024	4822 117 12306	150kΩ 1% 0.1W
3025	2322 706 71802	1.8kΩ 5% 0402
3026	4822 051 20684	680kΩ 5% 0.1W
3027	3198 031 04730	47Ω 5% 0402
3028	2322 704 67502	7.5kΩ 1% 0.5W
3029	4822 051 30123	12kΩ 5% 0.1W
3029	4822 051 30472	4.7Ω 5% 0.062W
3030	3198 031 01830	18kΩ 5% 0.01W 0402
3031	2322 704 61103	11kΩ 1% 0603
3032	2322 704 61103	11kΩ 1% 0603
3033	4822 051 30222	2.2kΩ 5% 0.062W
3034	4822 117 13596	220Ω 5% 0.01W 0402
3035	4822 051 20684	680kΩ 5% 0.1W
3036	2122 612 00051	NTC 1Ω 20%
3037	4822 051 30103	10kΩ 5% 0.062W
3038	4822 117 13632	100kΩ 1% 0603 0.62W
3039	4822 051 30105	1MΩ 5% 0.062W
3040	4822 117 10837	100kΩ 1% 0.1W
3041	4822 117 13603	33kΩ 5% 0402
3042	4822 051 30471	47Ω 5% 0.062W
3043	3198 031 04720	4.7kΩ 5% 0402
3044	4822 051 30102	1kΩ 5% 0.062W
3045	4822 051 30102	1kΩ 5% 0.062W
3046	4822 053 20565	5.6MΩ 5% 0.25W
3047	3198 031 01540	150kΩ 5% 0402
3048	3198 031 04720	4.7kΩ 5% 0402
3049	3198 031 01230	12kΩ 5% 0402
3050▲	4822 052 10398	3.9Ω 5% 0,33W
3051	4822 051 20562	5.6kΩ 5% 0.1W 0805
3051	4822 051 20822	8.2kΩ 5% 0.1W
3052	4822 117 12306	150kΩ 1% 0.1W
3053	2322 662 93131	PTC 10Ω
3054	4822 117 10833	10kΩ 1% 0.1W
3056	4822 051 30331	330Ω 5% 0.062W
3057	4822 051 30101	100Ω 5% 0.062W
3058	4822 051 20105	1MΩ 5% 0.1W
3062	4822 051 30102	1kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 051 30102	1kΩ 5% 0.062W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	3198 031 01530	15kΩ 5% 0.01W 0402
3070	4822 051 30103	10kΩ 5% 0.062W
3071	3198 031 04730	47Ω 5% 0402
3072	4822 053 10472	4.7kΩ 5% 1W
3075	4822 051 20105	1MΩ 5% 0.1W
3076	4822 117 13632	100kΩ 1% 0603 0.62W
3077	4822 051 20105	1MΩ 5% 0.1W
3078	4822 117 13632	100kΩ 1% 0603 0.62W
3080	4822 051 30101	100Ω 5% 0.062W
3081	4822 051 30222	2.2kΩ 5% 0.062W
3083	2312 915 11002	1kΩ 1% 0.5W
3084	4822 117 13606	10kΩ 5% 0.01W 0402
3085	3198 031 04730	47Ω 5% 0402
3086	3198 031 04730	47Ω 5% 0402
3087	3198 031 04730	47Ω 5% 0402
3088	3198 031 04730	47Ω 5% 0402
3090	4822 051 30101	100Ω 5% 0.062W
3091	4822 051 30102	1kΩ 5% 0.062W
3092	4822 051 10102	1kΩ 2% 0.25W
3093	4822 051 30102	1kΩ 5% 0.062W
3094	4822 051 10102	1kΩ 2% 0.25W
3095	4822 051 30471	47Ω 5% 0.062W
3096	3198 031 05620	5.6kΩ 5% 0.01W 0402
3097	3198 031 08210	820Ω 5% 0,5W
3098	3198 031 01090	10Ω 5% 0.01W 0402
3106	4822 117 12955	2.7kΩ 1% 0.1W 0805
3107	4822 117 12955	2.7kΩ 1% 0.1W 0805
3108	4822 117 12955	2.7kΩ 1% 0.1W 0805
3109	4822 117 12955	2.7kΩ 1% 0.1W 0805
3110	4822 051 30102	1kΩ 5% 0.062W
3112	4822 051 30102	1kΩ 5% 0.062W
3113	3198 031 04740	470kΩ 5% 0402
3114	2322 705 70564	560kΩ 5% 0402
3115	3198 031 02240	220kΩ 5% 0.1W 0402
3116	4822 051 30102	1kΩ 5% 0.062W
3117	4822 051 30103	10kΩ 5% 0.062W
3118	2122 118 06084	0.051Ω 5% 1W 2512
3120	4822 117 12903	1.8kΩ 1% 0.063W 0603
3121	3198 031 04730	47Ω 5% 0402
3122	2322 734 67503	75kΩ 1% 0.062W 0805
3123	4822 117 10965	18kΩ 1% 0.1W
3124	2322 704 67502	7.5kΩ 1% 0.5W
3125	2322 704 67502	7.5kΩ 1% 0.5W
3126	2322 706 72202	2.2kΩ 5% 0402
3128	4822 117 13603	33kΩ 5% 0402
3130	4822 051 30123	12kΩ 5% 0.1W
3130	4822 051 30472	4.7Ω 5% 0.062W
3131	2322 704 61103	11kΩ 1% 0603
3132	4822 117 13596	220Ω 5% 0.01W 0402
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3135	3198 031 04730	47Ω 5% 0402
3136	3198 031 04730	47Ω 5% 0402
3138	4822 117 11503	220Ω 1% 0.1W
3139	4822 117 11503	220Ω 1% 0.1W
3140	2322 734 67503	75kΩ 1% 0.062W 0805
3141	2322 734 67503	75kΩ 1% 0.062W 0805
3142	5322 117 12487	1kΩ 1% 0.125W
3143	4822 053 12472	4.7kΩ 5% 3W
3145	2322 763 65107	0.51Ω 1% 1W 2512
3146	2322 763 65107	0.51Ω 1% 1W 2512
3147	2322 704 61103	11kΩ 1% 0603
3148	2322 706 75602	5.6kΩ 5% 0402
3149	3198 031 01090	10Ω 5% 0.01W 0402
3149	4822 052 10478	4.7Ω 5% 0.33W
3200	2322 730 61224	220kΩ 5% 0.062W 0805
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 117 13632	100kΩ 1% 0603 0.62W
3205	4822 117 13632	100kΩ 1% 0603 0.62W
3206	4822 117 12955	2.7kΩ 1% 0.1W 0805
3207	4822 117 12955	2.7kΩ 1% 0.1W 0805
3208	4822 117 12955	2.7kΩ 1% 0.1W 0805
3209	4822 117 12955	2.7kΩ 1% 0.1W 0805
3212	4822 051 30102	1kΩ 5% 0.062W
3213	4822 117 13603	33kΩ 5% 0402
3214	2322 705 70124	120kΩ 5% 0402
3215	2322 705 70274	270kΩ 5% 0402
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 117 13606	10kΩ 5% 0.01W 0402
3218	2122 118 06084	0.051Ω 5% 1W 2512
3219	4822 117 13606	10kΩ 5% 0.01W 0402
3220	4822 050 23309	33Ω 1% 0,6W
3224	2322 706 71203	12kΩ 5% 0402
3225	2322 704 61103	11kΩ 1% 0603
3226	4822 117 13606	10kΩ 5% 0.01W 0402
3228	4822 051 30151	150Ω 5% 0.062W
3229	4822 051 30561	560Ω 5% 0.062W
3230	4822 117 13606	10kΩ 5% 0.01W 0402
3231	3198 031 04730	47Ω 5% 0402
3232	3198 031 03320	3.3kΩ 5% 0402
3233	4822 117 11148	56kΩ 1% 0.1W
3234	3198 031 01510	150Ω 5% 0.01W 0402
3235	4822 117 13606	10kΩ 5% 0.01W 0402
3236	4822 117 11503	220Ω 1% 0.1W
3237	4822 117 11503	220Ω 1% 0.1W
3260	4822 051 30109	10Ω 5% 0.062W
3261	4822 051 30102	1kΩ 5% 0.062W
3262	2322 706 71003	10kΩ 5% 0402
3263	2322 706 71003	10kΩ 5% 0402
3264	3198 031 05610	560Ω 5% 0.01W 0402
3264	3198 031 06820	6.8kΩ 5% 0.01W 0402
3265	4822 051 30102	1kΩ 5% 0.062W
3268	4822 051 30102	1kΩ 5% 0.062W
3269	3198 031 02720	2.7kΩ 5% 0.01W 0402
3292	4822 051 30561	560Ω 5% 0.062W
3300	4822 117 13579	220kΩ 1% 0.1W 0805
3301	4822 117 13579	220kΩ 1% 0.1W 0805
3302	2390 401 41004	100kΩ 1% 0805
3303	2390 401 41004	100kΩ 1% 0805
3304	4822 051 30102	1kΩ 5% 0.062W
3305	2390 401 46202	6.6kΩ 1% 0805
3306	2322 704 61103	11kΩ 1% 0603
3307	5322 117 13028	12kΩ 1% 0.063W 0603
3308	4822 051 30102	1kΩ 5% 0.062W
3311	4822 117 13579	220kΩ 1% 0.1W 0805
3312	4822 051 30102	1kΩ 5% 0.062W
3313	2322 704 67502	7.5kΩ 1% 0.5W
3316	2390 401 47502	7.5kΩ 1% 0805
3317	2322 704 67502	7.5kΩ 1% 0.5W
3320	2322 704 61103	11kΩ 1% 0603
3321	4822 051 30102	1kΩ 5% 0.062W
3322	2322 706 73902	3.9kΩ 1% 0402
3323	2322 706 71003	10kΩ 5% 0402
3324	4822 051 30102	1kΩ 5% 0.062W
3325	4822 051 30471	47Ω 5% 0.062W
3326	3198 031 04720	4.7kΩ 5% 0402
3327	4822 117 13606	10kΩ 5% 0.01W 0402
3328	4822 051 30103	10kΩ 5% 0.062W
3332	2322 706 76803	68kΩ 5% 0402
3333	4822 051 30102	1kΩ 5% 0.062W
3334	2322 706 71003	10kΩ 5% 0402
3335	4822 116 83933	15kΩ 1% 0.1W
3340	4822 051 30102	1kΩ 5% 0.062W
3341	4822 117 13606	10kΩ 5% 0.01W 0402
3342	4822 051 30103	10kΩ 5% 0.062W
3343	4822 051 30102	1kΩ 5% 0.062W
3344	4822 051 30102	1kΩ 5% 0.062W
3345	3198 031 04720	4.7kΩ 5% 0402
3347	4822 051 30331	330Ω 5% 0.062W
3348	4822 051 30331	330Ω 5% 0.062W
3349	4822 051 30102	1kΩ 5% 0.062W
3350	4822 051 30472	4.7Ω 5% 0.062W
3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 117 13606	10kΩ 5% 0.01W 0402
3354	3198 031 04720	4.7kΩ 5% 0402
3356	3198 031 05610	560Ω 5% 0.01W 0402
3358	4822 051 30222	2.2kΩ 5% 0.062W
3359	3198 031 05620	5.6kΩ 5% 0.01W 0402
3360	3198 031 01220	1.2kΩ 5% 0.01W 0402
3361	3198 031 04720	4.7kΩ 5% 0402
3362	3198 031 02720	2.7kΩ 5% 0.01W 0402

3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30102	1kΩ 5% 0.062W
3366	4822 117 13606	10kΩ 5% 0.01W 0402
3367	4822 051 30103	10kΩ 5% 0.062W
3368	2322 671 91104	PTC 120Ω 30V
3369	4822 117 13548	1kΩ 5% 0402
3373	3198 031 04720	4.7kΩ 5% 0402
3374	3198 031 04730	47Ω 5% 0402
3376	3198 031 04730	47Ω 5% 0402
3377	3198 031 04720	4.7kΩ 5% 0402
3378	4822 117 13606	10kΩ 5% 0.01W 0402
3380	3198 031 04730	47Ω 5% 0402
3381	3198 031 04730	47Ω 5% 0402
3382	2322 706 72204	220kΩ 5% 0402
3385	4822 117 13632	100kΩ 1% 0603 0.62W
3386	4822 117 13632	100kΩ 1% 0603 0.62W
3387	4822 051 30471	47Ω 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30102	1kΩ 5% 0.062W
3390	4822 117 13603	33kΩ 5% 0402
3391	4822 117 13545	100Ω 1% 0402
3392	4822 051 30102	1kΩ 5% 0.062W
3393	4822 117 11297	100kΩ 5% 0.1W
3394	4822 117 13545	100Ω 1% 0402
3396	2390 401 41004	100kΩ 1% 0805
3397	2390 401 41004	100kΩ 1% 0805
3400⚠	2122 550 00158	VDR 1mA 612V
3401⚠	4822 117 10118	1MΩ 5% 0.5W
3404	4822 116 83872	220Ω 5% 0.5W
3450⚠	2322 662 93131	PTC 10Ω
3451⚠	2322 662 93131	PTC 10Ω
3452	2122 612 00051	NTC 1Ω 20%
3460	3198 031 04720	4.7kΩ 5% 0402
3461	4822 117 13606	10kΩ 5% 0.01W 0402
3463	4822 117 13606	10kΩ 5% 0.01W 0402
3465	4822 117 13606	10kΩ 5% 0.01W 0402
3467	4822 117 13606	10kΩ 5% 0.01W 0402
3469	3198 031 04720	4.7kΩ 5% 0402
3470	4822 117 13606	10kΩ 5% 0.01W 0402
3501	4822 051 30102	1kΩ 5% 0.062W
3502	4822 051 30471	47Ω 5% 0.062W
3503	2322 706 74702	4.7kΩ 5% 0402
3504	2322 706 73303	33kΩ 5% 0402
3505	2322 706 74702	4.7kΩ 5% 0402
3506⚠	2322 662 93131	PTC 10Ω
3507	4822 051 20684	680kΩ 5% 0.1W
3508	2322 194 63109	10Ω 5% 2W
3520	4822 051 30109	10Ω 5% 0.062W
3530	4822 117 13632	100kΩ 1% 0603 0.62W
3603	4822 051 20474	470kΩ 5% 0.1W
3604	4822 051 20474	470kΩ 5% 0.1W
3605	4822 051 20474	470kΩ 5% 0.1W
3606	4822 051 30101	100Ω 5% 0.062W
3607	4822 117 12891	220kΩ 1%
3608	2312 915 11209	12Ω 1% 0.5W
3609	4822 051 20474	470kΩ 5% 0.1W
3610	4822 050 23308	3.3Ω 1% 0.6W
3611	2312 915 11002	1kΩ 1% 0.5W
3612	3198 031 01220	1.2kΩ 5% 0.01W 0402
3614	2120 105 00001	0.18Ω 5% 2W
3615	2120 105 00001	0.18Ω 5% 2W
3639	4822 051 10102	1kΩ 2% 0.25W
3640	4822 051 30331	330Ω 5% 0.062W
3641	4822 051 20471	470Ω 5% 0.1W
3642	4822 117 11503	220Ω 1% 0.1W
3643	4822 117 11503	220Ω 1% 0.1W
3651	4822 117 13601	22kΩ 5% 0402
3652	4822 051 30105	1MΩ 5% 0.062W
3654	4822 117 13606	10kΩ 5% 0.01W 0402
3655	4822 051 30102	1kΩ 5% 0.062W
3659	4822 117 11503	220Ω 1% 0.1W
3660	4822 117 11504	270Ω 1% 0.1W
3661	4822 117 11504	270Ω 1% 0.1W
3663⚠	4822 052 10108	1Ω 5% 0.33W
3664	2322 706 71204	120kΩ 5% 0402
3665	4822 117 13606	10kΩ 5% 0.01W 0402
3666	4822 051 30101	100Ω 5% 0.062W
3668⚠	4822 052 11102	1kΩ 5% 0.5W
3669	2322 706 71204	120kΩ 5% 0402
3671	2322 704 61103	11kΩ 1% 0603
3673⚠	4822 052 11102	1kΩ 5% 0.5W
3675	2322 702 60158	1.5Ω
3676	2322 706 74702	4.7kΩ 5% 0402
3677	2322 706 74703	47kΩ 1% 0402
3678	3198 031 04730	47Ω 5% 0402
3679	4822 117 12306	150kΩ 1% 0.1W
3680	4822 117 13579	220kΩ 1% 0.1W 0805
3681	4822 117 13579	220kΩ 1% 0.1W 0805
3682	4822 117 13579	220kΩ 1% 0.1W 0805
3683	4822 051 20334	330kΩ 5% 0.1W
3684	4822 051 20334	330kΩ 5% 0.1W
3685	4822 051 20334	330kΩ 5% 0.1W
3701	4822 051 30103	10kΩ 5% 0.062W
3702	4822 051 30682	6.8Ω 5% 0.062W
3703	4822 051 30333	33kΩ 5% 0.062W
3704	4822 117 10833	10kΩ 1% 0.1W
3705	4822 051 20828	8.2Ω 5% 0.1W
3706	4822 051 30472	4.7Ω 5% 0.062W
3707	4822 051 30683	68kΩ 5% 0.062W
3708	4822 051 30563	56kΩ 5% 0.062W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 051 30223	22kΩ 5% 0.062W
3711	4822 050 21204	120kΩ 1% 0,6W
3712	4822 051 30103	10kΩ 5% 0.062W
3713	4822 116 52207	1.2kΩ 5% 0.5W
3713	4822 117 11817	1.2kΩ 1% 0.0625W
3714	4822 117 12925	47kΩ 1% 0.063W 0603
3715	4822 117 12925	47kΩ 1% 0.063W 0603
3716	4822 117 12925	47kΩ 1% 0.063W 0603
3717	4822 116 52234	100kΩ 5% 0.5W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3721	4822 051 30472	4.7Ω 5% 0.062W
3722	4822 051 30683	68kΩ 5% 0.062W
3723	4822 051 30563	56kΩ 5% 0.062W
3724	4822 117 11503	220Ω 1% 0.1W
3725	4822 051 30223	22kΩ 5% 0.062W
3726	4822 117 11503	220Ω 1% 0.1W
3727	4822 117 11503	220Ω 1% 0.1W
3743	4822 117 11449	2.2kΩ 5% 0.1W 0805
3746	4822 051 30223	22kΩ 5% 0.062W
3747	4822 117 12925	47kΩ 1% 0.063W 0603
3748	4822 116 83883	470Ω 5% 0.5W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3756	4822 117 11449	2.2kΩ 5% 0.1W 0805
3757	4822 117 11449	2.2kΩ 5% 0.1W 0805
3760	4822 117 12891	220kΩ 1%
3761	4822 051 20109	10Ω 5% 0.1W
3762	4822 051 20109	10Ω 5% 0.1W
3763	4822 117 13632	100kΩ 1% 0603 0.62W
3764	4822 051 30222	2.2kΩ 5% 0.062W
3765	4822 051 30222	2.2kΩ 5% 0.062W
3766	4822 051 30103	10kΩ 5% 0.062W
3766	4822 117 13632	100kΩ 1% 0603 0.62W
3767	4822 117 13632	100kΩ 1% 0603 0.62W
3768	4822 117 13632	100kΩ 1% 0603 0.62W
3790	4822 051 30272	2.7kΩ 5% 0.062W
3791	4822 051 30272	2.7kΩ 5% 0.062W
3792	4822 051 30103	10kΩ 5% 0.062W
3792	4822 051 30183	18kΩ 5% 0.062W
3793	4822 051 30103	10kΩ 5% 0.062W
3793	4822 051 30183	18kΩ 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3999	4822 051 30101	100Ω 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W
9000	4822 051 20008	Jumper 0805
9002	3198 036 90010	Wire 0.58mm
9021	4822 051 20008	Jumper 0805
9022	4822 051 20008	Jumper 0805
9717	4822 051 30008	Jumper 0603

5001	2422 531 02444	Transformer S13932-04Y
5002⚠	8204 000 77111	Transformer BS42315-01
5004⚠	8204 000 77111	Transformer BS42315-01
5005	3122 138 38901	Mains filter CU28D3
5121	3104 308 20771	Bridge coil BD21232-00
5220	3104 308 20911	Transf. BS29238-00
5225	2422 536 00672	4.7µH 20%
5229	2422 536 00826	220µH 10%
5260	3198 018 71010	100µF 10%
5268	2422 536 00288	100µH 10%
5291	4822 157 11737	22µH 10%
5292	4822 157 11737	22µH 10%
5293	4822 157 11737	22µH 10%
5401	3122 138 38901	Mains filter CU28D3
5402	3122 138 38901	Mains filter CU28D3
5503	4822 157 11737	22µH 10%
5600	3104 308 20821	Coil BS42228-00 B
5601	4822 157 11411	Bead 80Ω at 100MHz
5612	4822 157 11411	Bead 80Ω at 100MHz
5660	4822 157 51192	220µH 10%
5701	2422 536 00385	68µH 10%
5702	2422 536 00385	68µH 10%
5703	4822 157 11716	Bead 30Ω at 100MHz
5704	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz
5711	4822 157 11411	Bead 80Ω at 100MHz
5712	4822 157 11411	Bead 80Ω at 100MHz

6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	9340 548 61115	PDZ12B
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	9340 550 66112	BYV28-200/24
6022	4822 130 11397	BAS316
6023	4822 130 11397	BAS316
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6031	3198 020 55680	BZX384-C5V6
6032	3198 020 55680	BZX384-C5V6
6033	9322 150 18685	BZX384-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6042	9322 150 18685	BZX384-C47
6044	9322 202 88687	STTH2003CFP
6045	9340 550 66112	BYV28-200/24
6050	4822 130 11152	UDZ18B
6054	9340 553 52115	BAS321
6055	9340 553 52115	BAS321
6061	4822 130 11152	UDZ18B
6062	4822 130 11152	UDZ18B
6075	9340 292 80135	BZG03-C270
6077	9340 292 80135	BZG03-C270
6086	4822 130 11397	BAS316
6095	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	4822 130 11397	BAS316
6113	4822 130 11397	BAS316
6114	9340 548 61115	PDZ12B
6117	4822 130 11152	UDZ18B
6120	9322 202 75687	BYW29FP-200
6123	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6142	9322 192 15668	SM S3J
6202	4822 130 11397	BAS316
6204	3198 020 55680	BZX384-C5V6
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 128 70685	SMSS14
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6225	9322 173 47687	STPS20L40CFP
6230	9322 155 79685	EC31QS04
6260	4822 130 11421	BT151X-500R
6267	4822 130 82627	SB540
6268	9322 198 81685	SL04
6269	9322 099 61685	BYG10J
6270	9322 099 61685	BYG10J
6291	4822 130 11572	STPS8H100F
6292	4822 130 11572	STPS8H100F
6312	4822 130 80622	BAT54
6313	4822 130 80622	BAT54
6321	4822 130 80622	BAT54
6322	4822 130 80622	BAT54
6325	4822 130 11416	PDZ6.8B
6333	4822 130 80622	BAT54
6334	4822 130 80622	BAT54
6340	4822 130 80622	BAT54
6341	4822 130 80622	BAT54
6344	4822 130 10838	UDZ3.3B
6347	4822 130 80622	BAT54
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6366	4822 130 80622	BAT54
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 80622	BAT54
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501	9336 018 60133	BZT03-C300
6502	9336 018 60133	BZT03-C300
6503	9322 176 76668	RS1J
6504	9322 176 76668	RS1J
6505	9322 155 79685	EC31QS04
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J
6520	4822 130 11397	BAS316
6530	4822 130 11152	UDZ18B
6531	4822 130 11152	UDZ18B
6600	9322 177 84667	GBU8JL-7014
6601	9322 150 17685	BZX384-C39
6605	9322 192 15668	SM S3J
6606	9322 192 15668	SM S3J
6608	9322 128 69685	S1D
6609	9340 289 90135	BZG03-C18

6611	3139 120 52021	BYV29X-500
6640	9322 128 70685	SMSS14
6641	4822 130 11397	BAS316
6642	9322 128 70685	SMSS14
6643	4822 130 11152	UDZ18B
6651	4822 130 80622	BAT54
6652	9322 128 70685	SMSS14
6653	4822 130 10837	UDZS8.2B
6654	4822 130 11397	BAS316
6660	9322 176 76668	RS1J
6661	9322 176 76668	RS1J
6663	9322 198 81685	SL04
6665	9322 198 81685	SL04
6701	4822 130 11397	BAS316
6710	4822 130 11551	UDZS10B
6711	4822 130 11551	UDZS10B

7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7003▲	9322 149 04682	TCET1102
7004	9322 192 17685	P0102BL
7005	9322 192 18687	STP15NK50ZFP
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 41246	BC327-25
7008	4822 130 41246	BC327-25
7009	3198 010 42310	BC847BW
7010	9322 192 16685	TS2431AI
7011	9322 192 16685	TS2431AI
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7022	3198 010 42310	BC847BW
7042	9340 308 50135	PMST5401
7050	9340 557 16127	PSMN035-150P
7052	9340 557 58118	PSMN063-150D
7058	3198 010 42310	BC847BW
7059	9340 308 60135	PMST5550
7090	3198 010 42320	BC857BW
7091	3198 010 42320	BC857BW
7092	3198 010 44350	BC807-25W
7093	4822 209 80591	LM317T
7101	3198 010 42310	BC847BW
7102	9340 308 60135	PMST5550
7103	3198 010 42320	BC857BW
7110	9340 308 50135	PMST5401
7112	9352 673 56112	TEA1507P/N1
7117	9340 557 17118	PSMN035-150B
7120▲	9322 149 04682	TCET1102
7121	9322 192 16685	TS2431AI
7130	9322 192 16685	TS2431AI
7134	3198 010 42310	BC847BW
7140	9340 425 10115	BC857BS
7142	9340 308 50135	PMST5401
7200	9340 565 06215	BSH114
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507P/N1
7217	9340 557 18127	PSMN070-200P
7220▲	9322 149 04682	TCET1102
7227	9322 192 16685	TS2431AI
7230	9322 205 64687	L4940P85
7260	9322 166 31682	L4973V3.3
7304	9322 192 16685	TS2431AI
7308	4822 209 60177	LM339D
7326	3198 010 42310	BC847BW
7327	3198 010 42310	BC847BW
7330	4822 209 60177	LM339D
7341	3198 010 42320	BC857BW
7348	3198 010 42310	BC847BW
7351	3198 010 42310	BC847BW
7352	3198 010 42310	BC847BW
7362	3198 010 42310	BC847BW
7366	4822 209 63709	LM324D
7375	3198 010 42310	BC847BW
7376	3198 010 42310	BC847BW
7389	3198 010 42320	BC857BW
7391	3198 010 42310	BC847BW
7393	3198 010 42310	BC847BW
7460	9340 219 30115	BC817-25W
7465	3198 010 42320	BC857BW
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501▲	9322 149 04682	TCET1102
7502	9322 192 16685	TS2431AI
7530	9322 160 70668	SI4936ADY
7540	4822 209 17398	LD1117DT33
7608	5322 130 44593	BC369
7610	9322 130 47687	STY34NB50
7610	9322 192 95687	STW26NM50
7640	9965 000 04199	BSN20
7641	9340 219 30115	BC817-25W
7650	9322 130 69682	MC33368P
7654	3198 010 42320	BC857BW
7661	5322 209 90529	MC34063AD
7700	9322 163 86682	TDA7490L
7701	3198 010 42310	BC847BW
7701	5322 130 60159	BC846B
7703	3198 010 42310	BC847BW
7703	5322 130 60159	BC846B
7704	3198 010 42310	BC847BW
7704	5322 130 60159	BC846B
7705	3198 010 42310	BC847BW
7705	5322 130 60159	BC846B
7706	3198 010 42320	BC857BW
7706	4822 130 60373	BC856B
7707	3198 010 42310	BC847BW
7707	5322 130 60159	BC846B
7710	3198 010 42310	BC847BW
7710	5322 130 60159	BC846B
7711	3198 010 42310	BC847BW
7711	5322 130 60159	BC846B
7712	3198 010 42310	BC847BW
7712	5322 130 60159	BC846B
7713	3198 010 42310	BC847BW
7713	5322 130 60159	BC846B

Ambi Light Panel [AL]

Various

0615	3104 317 08251	Softw. (check Prod.Surv.)
1002	2422 025 09406	Connector 4p m
1003	2422 025 10768	Connector 3p m
1006	2422 025 12485	Connector 11p m
1007	2422 025 12485	Connector 11p m
1008	4822 267 10735	Connector 3p
1009	4822 267 10735	Connector 3p
1010▲	2422 086 00657	Fuse 3A 125V F SMD
1050	2422 543 01431	Xtal 20MHz 16pF
1M10	2422 025 09406	Connector 4p m
1M11	2422 025 12485	Connector 11p m
1M12	4822 267 10735	Connector 3p
1M13	2422 025 12485	Connector 11p m
1M14	4822 267 10735	Connector 3p
1M48	2422 025 10768	Connector 3p m

2001	2020 012 00018	1000µF 20% 16V
2002	2238 586 59812	100nF 20% 50V 0603
2003	2020 552 96618	1nF 10% 50V 0402
2004	2020 552 96618	1nF 10% 50V 0402
2005	3198 034 01590	15pF 1% 50V 0402
2006	3198 034 01590	15pF 1% 50V 0402
2013	5322 121 42498	680nF 5% 63V
2014	5322 121 42498	680nF 5% 63V
2015	5322 121 42498	680nF 5% 63V
2016	5322 121 42498	680nF 5% 63V
2017	5322 121 42498	680nF 5% 63V
2018	5322 121 42498	680nF 5% 63V
2021	2020 552 96683	220nF 10% 50V
2023	2020 552 96683	220nF 10% 50V
2024	2020 552 96683	220nF 10% 50V
2030	2020 552 96683	220nF 10% 50V
2032	2020 552 96683	220nF 10% 50V
2033	2020 552 96683	220nF 10% 50V
2040	2020 552 96683	220nF 10% 50V
2043	2020 552 96683	220nF 10% 50V
2045	2020 552 96683	220nF 10% 50V
2050	2020 552 96683	220nF 10% 50V
2052	2020 552 96683	220nF 10% 50V
2055	2020 552 96683	220nF 10% 50V
2060	2020 552 96683	220nF 10% 50V
2062	2020 552 96683	220nF 10% 50V
2064	2020 552 96683	220nF 10% 50V
2071	2020 552 96683	220nF 10% 50V
2074	2020 552 96683	220nF 10% 50V
2075	2020 552 96683	220nF 10% 50V

3001	4822 117 13545	100Ω 1% 0402
3002	4822 117 13545	100Ω 1% 0402
3003	4822 117 13596	220Ω 5% 0.01W 0402
3004	4822 051 20471	470Ω 5% 0.1W
3004	4822 117 11503	220Ω 1% 0.1W
3005	4822 051 20561	560Ω 5% 0.1W
3005	4822 117 11504	270Ω 1% 0.1W
3006	2322 762 60102	1kΩ 5% 2512
3007	2322 762 60102	1kΩ 5% 2512
3008	4822 051 20471	470Ω 5% 0.1W
3008	4822 117 11503	220Ω 1% 0.1W
3009	4822 051 20561	560Ω 5% 0.1W
3009	4822 117 11504	270Ω 1% 0.1W
3010	2322 762 60102	1kΩ 5% 2512
3011	2322 762 60102	1kΩ 5% 2512
3012	4822 051 20471	470Ω 5% 0.1W
3012	4822 117 11503	220Ω 1% 0.1W
3013	4822 051 20561	560Ω 5% 0.1W
3013	4822 117 11504	270Ω 1% 0.1W
3014	2322 762 60102	1kΩ 5% 2512
3015	2322 762 60102	1kΩ 5% 2512
3016	3198 031 04720	4.7kΩ 5% 0402
3017	3198 031 04720	4.7kΩ 5% 0402
3018	3198 031 04720	4.7kΩ 5% 0402
3018	4822 117 13606	10kΩ 5% 0.01W 0402
3019	3198 031 04720	4.7kΩ 5% 0402
3019	4822 117 13606	10kΩ 5% 0.01W 0402
3020	3198 031 04720	4.7kΩ 5% 0402
3020	4822 117 13606	10kΩ 5% 0.01W 0402
3022	4822 117 13545	100Ω 1% 0402
3023	4822 117 13545	100Ω 1% 0402
3024	3198 031 04720	4.7kΩ 5% 0402
3025	3198 031 04720	4.7kΩ 5% 0402
3026	4822 052 10102	1kΩ 5% 0.33W
3028	4822 117 13606	10kΩ 5% 0.01W 0402
3029	3198 031 04720	4.7kΩ 5% 0402
3030	3198 031 04720	4.7kΩ 5% 0402
3031	3198 031 04720	4.7kΩ 5% 0402

5002	2422 536 00923	22µH 10% LHL10
5004▲	3104 308 21271	Transf. BD21416-00
5005▲	3104 308 21271	Transf. BD21416-00
5006▲	3104 308 21271	Transf. BD21416-00
5007	2422 536 00923	22µH 10% LHL10
5008	2422 536 00923	22µH 10% LHL10

6000	4822 130 11397	BAS316
6001	4822 130 11397	BAS316
6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6006	4822 130 11152	UDZ18B
6007	4822 130 11152	UDZ18B
6008	4822 130 11152	UDZ18B
6009	4822 130 11152	UDZ18B
6010	4822 130 11152	UDZ18B
6011	4822 130 11152	UDZ18B

7001		For SW see item 0615
7002	9322 202 58668	LD1117DT50
7009	3198 010 42310	BC847BW
7010	3198 010 42310	BC847BW
7011	3198 010 42310	BC847BW
7015▲	9322 214 20668	SI4946EY
7016▲	9322 214 20668	SI4946EY
7017▲	9322 214 20668	SI4946EY
7018	3198 010 42310	BC847BW
7019	3198 010 42310	BC847BW
7020	3198 010 42310	BC847BW

Small Signal Board [B]

Various

0036	3104 308 11671	Conn pl. PDP US/AP
0070	3104 308 11931	Top shielding assy
0071	3104 308 11941	Bottom shielding assy
0103	3104 303 11381	EMC foam tuner
0328	2422 034 21798	Screwlock
0601	3104 317 07911	Softw. (check Prod.Surv.)
0602	3104 317 07721	Softw. (check Prod.Surv.)
0603	3104 317 06611	Softw. (check Prod.Surv.)
0605	3104 317 47621	Softw. (check Prod.Surv.)
1000	2422 086 11092	Fuse 500mA 50V F SMD
1001	2422 543 89022	Xtal 6MHz 20p
1062	2422 549 00148	Socket 3p m
1062	2422 549 00151	Socket 3p m
1062	3122 358 76371	Mains inlet delta
1308	2422 543 01183	Xtal 3.579545MHz 16p
1403▲	2422 086 11092	Fuse 500mA 50V F SMD
1404	2422 127 00543	Switch 1p 2pos
1406	2422 549 44043	Filt. 4.5MHz TPSCC*MB
1410	2422 549 44377	SAW 45.75MHz M1967L
1411	2422 549 44534	Filter 4.5MHz

1702	2422 540 98456	Resonator 12MHz
1A00	2422 543 89019	Xtal 18.432MHz 12p
1D01	2422 025 18167	Socket 19p f HDMI
1D01	2422 033 00018	Connector 19p F
1E02	2422 025 17274	Connector 10p m
1E04	2422 025 17103	Connector 3p m SMD
1G50	2422 025 18427	Connector 31p f
1I01	2422 026 05525	Socket 6p f
1I02	2422 026 05102	Conector 2p f bkbk
1I02	2422 026 05622	Socket 2p f
1I04	2422 026 05525	Socket 6p f
1I06	2422 026 05526	Socket 4p f
1I07	2422 026 05054	Soc CINCH 2p f WhRd
1I09	2422 026 05054	Soc CINCH 2p f WhRd
1I10	2422 026 05081	Connector 8p f
1I53	2422 549 00146	Line filter 20V 3A
1I53	2422 549 45325	Bead 67Ω at 100MHz
1I56	2422 549 00146	Line filter 20V 3A
1I56	2422 549 45325	Bead 67Ω at 100MHz
1I57	2422 549 00146	Line filter 20V 3A
1I57	2422 549 45325	Bead 67Ω at 100MHz
1I59	2422 549 00146	Line filter 20V 3A
1I59	2422 549 45325	Bead 67Ω at 100MHz
1I79▲	2422 086 00623	Fuse 3A T 125V
1M01	2422 025 10768	Connector 3p m
1M15	4822 267 10748	Connector 3p
1M20	2422 025 10772	Connector 12p m
1M48	2422 025 10768	Connector 3p m
1M49	2422 025 10768	Connector 3p m
1M52	2422 025 10769	Connector 9p m
1P03	2422 543 01183	Xtal 3.579545MHz 16p
1P05	2422 549 44377	SAW 45.75MHz M1967L
1P07	2422 549 44534	Filter 4.5MHz
1P08	2422 549 44043	Filt. 4.5MHz TPSCC*MB
1P50	2422 543 01059	Resonator 18MHz 12p
1P50	2422 543 01442	Xtal 32.76 MHz
1T01	2422 542 00006	Tuner TEDH9-705A
1T01	3139 147 21461	Tuner UV1338/A F S H-4
1T02	2422 542 00001	Tuner TEDH9-244A
1T02	2422 542 00009	Tuner TEDH9-257A
1U01▲	2422 086 11112	Fuse 1A T 125V
8192	3104 311 07711	Wire phono M/170/IEC
8220	3104 311 07291	Cable 12P/820/12P
8220	3104 311 08631	Cable12P/480/12P
8303	3104 311 06511	Cable 10p/280/10p
8303	3104 311 06701	Cable 10P/480/10P
8307	3104 311 05691	Cable 5p/100/5p
8321	3104 311 08731	Cable POSI/100/POSI
8321	3122 358 76331	Tree assy M91-CP91
8337	3104 311 08621	Cable 11P/220/11P
8346	3104 311 07401	Cable 11P/180/11P
8346	3104 311 08031	Cable 11P/480/11P
8346	3104 311 08161	Cable 11P/480/11P
8349	3104 311 08781	Cable 3P/1000/3P
8352	3104 311 07941	Cable 9P/820/9P
8352	3104 311 08661	Cable 9P/720/9P
8436	3104 311 07951	Cable 11P/680/11P

⊣⊢

2002	3198 034 02790	47pF 1% 50V 0402
2003	2238 780 15654	220nF 10% 16V 0805
2004	2238 780 15654	220nF 10% 16V 0805
2005	2238 586 59812	100nF 20% 50V 0603
2006	2238 586 59812	100nF 20% 50V 0603
2007	2238 586 59812	100nF 20% 50V 0603
2008	2238 586 59812	100nF 20% 50V 0603
2010	3198 034 04790	27pF 1% 50V 0402
2011	3198 034 04790	27pF 1% 50V 0402
2012	3198 034 04790	27pF 1% 50V 0402
2013	2020 021 91557	100µF 20% 16V
2016	4822 124 12095	100µF 20% 16V
2017	2238 586 59812	100nF 20% 50V 0603
2018	4822 126 14324	33pF 5% 50V 0402
2019	2238 586 59812	100nF 20% 50V 0603
2020	2238 869 15221	220pF 1% 50V 0402
2022	2238 586 59812	100nF 20% 50V 0603
2023	2238 586 59812	100nF 20% 50V 0603
2024	2238 586 59812	100nF 20% 50V 0603
2025	2238 586 59812	100nF 20% 50V 0603
2026	2238 586 59812	100nF 20% 50V 0603
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2238 586 59812	100nF 20% 50V 0603
2031	2238 586 59812	100nF 20% 50V 0603
2033	2238 869 75829	82pF 5% 50V 0402
2034	2238 869 75829	82pF 5% 50V 0402
2035	2238 869 75829	82pF 5% 50V 0402
2036	2238 869 75829	82pF 5% 50V 0402
2037	2238 869 75829	82pF 5% 50V 0402
2038	2238 586 59812	100nF 20% 50V 0603
2039	2238 586 59812	100nF 20% 50V 0603
2040	2238 586 59812	100nF 20% 50V 0603
2067	2238 586 59812	100nF 20% 50V 0603
2074	2238 586 59812	100nF 20% 50V 0603
2075	2238 586 59812	100nF 20% 50V 0603
2300	3198 034 04790	27pF 1% 50V 0402
2305	2238 586 59812	100nF 20% 50V 0603
2316	2238 586 59812	100nF 20% 50V 0603
2322	2238 586 59812	100nF 20% 50V 0603
2350	2238 586 59812	100nF 20% 50V 0603
2351	2238 586 59812	100nF 20% 50V 0603
2352	2238 586 59812	100nF 20% 50V 0603
2356	2238 586 59812	100nF 20% 50V 0603
2357	2238 586 59812	100nF 20% 50V 0603
2358	3198 035 03320	3.3nF 5% 50V 0402
2361	3198 034 01280	1.2pF 1% 50V 0402
2362	3198 034 01290	12pF 1% 50V 0402
2365	2238 586 59812	100nF 20% 50V 0603
2366	2238 586 59812	100nF 20% 50V 0603
2367	2238 586 59812	100nF 20% 50V 0603
2368	2238 586 59812	100nF 20% 50V 0603
2369	2238 586 59812	100nF 20% 50V 0603
2370	2238 586 59812	100nF 20% 50V 0603
2371	3198 035 14720	4.7nF 5% 25V 0402
2372	2022 552 05679	1µF 10% 16V 0805
2373	2238 586 59812	100nF 20% 50V 0603
2374	2022 552 05679	1µF 10% 16V 0805
2375	2238 787 15641	22nF 5% 16V 0402
2376	2238 586 59812	100nF 20% 50V 0603
2377	2020 021 91557	100µF 20% 16V
2378	2238 586 59812	100nF 20% 50V 0603
2384	2238 586 59812	100nF 20% 50V 0603
2387	2022 552 05679	1µF 10% 16V 0805
2390	2238 586 59812	100nF 20% 50V 0603
2391	2238 586 59812	100nF 20% 50V 0603
2392	2022 552 05679	1µF 10% 16V 0805
2394	2022 552 05679	1µF 10% 16V 0805
2401	2020 552 96628	10nF 10% 16V 0402
2403	2238 586 59812	100nF 20% 50V 0603
2404	2022 552 05679	1µF 10% 16V 0805
2405	3198 035 14720	4.7nF 5% 25V 0402
2409	2022 552 05679	1µF 10% 16V 0805
2410	2020 021 91557	100µF 20% 16V
2411	2238 586 59812	100nF 20% 50V 0603
2412	3198 035 14720	4.7nF 5% 25V 0402
2414	2020 021 91557	100µF 20% 16V
2415	2238 586 59812	100nF 20% 50V 0603
2416	2022 552 05679	1µF 10% 16V 0805
2418	3198 034 01290	12pF 1% 50V 0402
2425	2020 021 91557	100µF 20% 16V
2432	2238 586 59812	100nF 20% 50V 0603
2433	2238 586 59812	100nF 20% 50V 0603
2434	2238 586 59812	100nF 20% 50V 0603
2435	2020 552 96618	1nF 10% 50V 0402
2436	2022 552 05679	1µF 10% 16V 0805
2707	3198 034 02790	47pF 1% 50V 0402
2707	4822 126 14519	22pF 5% 50V 0402
2708	2238 586 59812	100nF 20% 50V 0603
2709	2238 586 59812	100nF 20% 50V 0603
2710	2238 586 59812	100nF 20% 50V 0603
2711	2238 586 59812	100nF 20% 50V 0603
2712	2238 586 59812	100nF 20% 50V 0603
2713	4822 126 14519	22pF 5% 50V 0402
2714	4822 126 14519	22pF 5% 50V 0402
2715	2020 021 91854	10µF 20% 16V
2716	2238 586 59812	100nF 20% 50V 0603
2717	2238 586 59812	100nF 20% 50V 0603
2718	3198 034 01590	15pF 1% 50V 0402
2719	3198 034 01590	15pF 1% 50V 0402
2720	3198 034 01590	15pF 1% 50V 0402
2721	2238 869 15101	100pF 5% 50V 0402
2722	2238 869 15101	100pF 5% 50V 0402
2723	2238 586 59812	100nF 20% 50V 0603
2725	2238 586 59812	100nF 20% 50V 0603
2726	2238 586 59812	100nF 20% 50V 0603
2727	2238 586 59812	100nF 20% 50V 0603
2728	2020 021 91854	10µF 20% 16V
2729	2238 586 59812	100nF 20% 50V 0603
2730	2020 021 91557	100µF 20% 16V
2731	2238 586 59812	100nF 20% 50V 0603
2732	2020 552 96618	1nF 10% 50V 0402
2733	2238 586 59812	100nF 20% 50V 0603
2734	2238 586 59812	100nF 20% 50V 0603
2735	2238 586 59812	100nF 20% 50V 0603
2736	2238 586 59812	100nF 20% 50V 0603
2738	2238 586 59812	100nF 20% 50V 0603
2739	2020 021 91557	100µF 20% 16V
2740	2238 787 15641	22nF 5% 16V 0402
2741	2238 787 15641	22nF 5% 16V 0402
2742	2238 787 15641	22nF 5% 16V 0402
2743	2238 586 59812	100nF 20% 50V 0603
2744	2238 586 59812	100nF 20% 50V 0603
2745	2238 586 59812	100nF 20% 50V 0603
2746	2238 586 59812	100nF 20% 50V 0603
2747	4822 126 14524	68pF 5% 50V 0402
2748	2238 586 59812	100nF 20% 50V 0603
2749	2238 586 59812	100nF 20% 50V 0603
2750	2020 552 96618	1nF 10% 50V 0402
2750	2238 586 59812	100nF 20% 50V 0603
2751	2020 552 96618	1nF 10% 50V 0402
2751	2238 586 59812	100nF 20% 50V 0603
2752	2020 552 96618	1nF 10% 50V 0402
2752	2238 586 59812	100nF 20% 50V 0603
2753	2020 552 96618	1nF 10% 50V 0402
2753	2238 586 59812	100nF 20% 50V 0603
2754	2020 552 96618	1nF 10% 50V 0402
2755	2020 552 96618	1nF 10% 50V 0402
2755	2238 586 59812	100nF 20% 50V 0603
2756	2020 552 96618	1nF 10% 50V 0402
2756	2238 586 59812	100nF 20% 50V 0603
2757	2238 787 15641	22nF 5% 16V 0402
2759	2020 552 96618	1nF 10% 50V 0402
2759	2238 586 59812	100nF 20% 50V 0603
2760	2238 586 59812	100nF 20% 50V 0603
2760	2238 787 15641	22nF 5% 16V 0402
2761	2238 586 59812	100nF 20% 50V 0603
2761	2238 787 15641	22nF 5% 16V 0402
2762	2238 586 59812	100nF 20% 50V 0603
2762	2238 787 15641	22nF 5% 16V 0402
2763	2238 586 59812	100nF 20% 50V 0603
2763	2238 787 15641	22nF 5% 16V 0402
2764	2238 586 59812	100nF 20% 50V 0603
2764	2238 787 15641	22nF 5% 16V 0402
2768	2238 586 59812	100nF 20% 50V 0603
2768	2238 787 15641	22nF 5% 16V 0402
2769	2020 552 96618	1nF 10% 50V 0402
2769	2238 586 59812	100nF 20% 50V 0603
2770	2020 552 96618	1nF 10% 50V 0402
2770	2238 586 59812	100nF 20% 50V 0603
2771	2020 552 96618	1nF 10% 50V 0402
2771	2238 586 59812	100nF 20% 50V 0603
2772	2238 586 59812	100nF 20% 50V 0603
2772	2238 787 15641	22nF 5% 16V 0402
2773	2020 552 96618	1nF 10% 50V 0402
2773	2238 586 59812	100nF 20% 50V 0603
2777	2020 552 96618	1nF 10% 50V 0402
2777	2238 586 59812	100nF 20% 50V 0603
2778	2020 552 96618	1nF 10% 50V 0402
2778	2238 586 59812	100nF 20% 50V 0603
2780	2020 552 96618	1nF 10% 50V 0402
2780	2238 586 59812	100nF 20% 50V 0603
2781	2020 552 96618	1nF 10% 50V 0402
2781	2238 586 59812	100nF 20% 50V 0603
2782	2020 552 96618	1nF 10% 50V 0402
2782	2238 586 59812	100nF 20% 50V 0603
2784	2238 586 59812	100nF 20% 50V 0603
2784	2238 787 15641	22nF 5% 16V 0402
2785	2238 586 59812	100nF 20% 50V 0603
2785	2238 787 15641	22nF 5% 16V 0402
2788	2238 586 59812	100nF 20% 50V 0603
2789	2238 586 59812	100nF 20% 50V 0603
2790	2238 586 59812	100nF 20% 50V 0603
2791	2238 586 59812	100nF 20% 50V 0603
2792	2238 586 59812	100nF 20% 50V 0603
2793	2238 586 59812	100nF 20% 50V 0603
2794	2020 552 96618	1nF 10% 50V 0402
2794	2238 586 59812	100nF 20% 50V 0603
2795	2020 552 96618	1nF 10% 50V 0402
2795	2238 586 59812	100nF 20% 50V 0603
2796	2020 552 96618	1nF 10% 50V 0402
2796	2238 586 59812	100nF 20% 50V 0603
2797	2020 552 96618	1nF 10% 50V 0402
2797	2238 586 59812	100nF 20% 50V 0603
2798	2020 552 96618	1nF 10% 50V 0402
2798	2238 586 59812	100nF 20% 50V 0603
2799	2020 552 96618	1nF 10% 50V 0402
2799	2238 586 59812	100nF 20% 50V 0603
2800	2238 586 59812	100nF 20% 50V 0603
2802	2238 586 59812	100nF 20% 50V 0603
2804	2238 586 59812	100nF 20% 50V 0603
2805	2020 552 96618	1nF 10% 50V 0402
2805	2238 586 59812	100nF 20% 50V 0603
2806	2238 586 59812	100nF 20% 50V 0603
2807	2238 586 59812	100nF 20% 50V 0603
2808	2020 552 96618	1nF 10% 50V 0402
2808	2238 586 59812	100nF 20% 50V 0603
2809	2020 552 96618	1nF 10% 50V 0402
2809	2238 586 59812	100nF 20% 50V 0603
2810	2238 586 59812	100nF 20% 50V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	3198 031 02290	22Ω 5% 0.1W 0402
2813	2238 586 59812	100nF 20% 50V 0603
2817	2238 586 59812	100nF 20% 50V 0603
2819	2238 586 59812	100nF 20% 50V 0603
2821	2238 586 59812	100nF 20% 50V 0603
2821	2238 787 15641	22nF 5% 16V 0402
2822	2238 586 59812	100nF 20% 50V 0603
2822	2238 787 15641	22nF 5% 16V 0402
2823	2238 586 59812	100nF 20% 50V 0603
2824	2238 586 59812	100nF 20% 50V 0603

2825	2238 586 59812	100nF 20% 50V 0603
2826	2238 586 59812	100nF 20% 50V 0603
2827	2238 586 59812	100nF 20% 50V 0603
2829	2020 021 91557	100µF 20% 16V
2830	2238 586 59812	100nF 20% 50V 0603
2831	2238 586 59812	100nF 20% 50V 0603
2832	2238 586 59812	100nF 20% 50V 0603
2833	2238 586 59812	100nF 20% 50V 0603
2834	2238 586 59812	100nF 20% 50V 0603
2835	2238 586 59812	100nF 20% 50V 0603
2836	2238 586 59812	100nF 20% 50V 0603
2837	2238 869 15101	100pF 5% 50V 0402
2838	2238 869 15101	100pF 5% 50V 0402
2839	2238 869 15101	100pF 5% 50V 0402
2840	4822 126 14519	22pF 5% 50V 0402
2841	4822 126 14519	22pF 5% 50V 0402
2844	2238 586 59812	100nF 20% 50V 0603
2845	2238 586 59812	100nF 20% 50V 0603
2846	2238 586 59812	100nF 20% 50V 0603
2847	2020 021 91854	10µF 20% 16V
2848	2238 586 59812	100nF 20% 50V 0603
2849	2238 586 59812	100nF 20% 50V 0603
2850	2238 586 59812	100nF 20% 50V 0603
2851	2238 586 59812	100nF 20% 50V 0603
2852	2238 586 59812	100nF 20% 50V 0603
2853	2238 586 59812	100nF 20% 50V 0603
2854	2238 586 59812	100nF 20% 50V 0603
2855	2238 586 59812	100nF 20% 50V 0603
2856	2238 586 59812	100nF 20% 50V 0603
2857	2238 586 59812	100nF 20% 50V 0603
2858	2238 586 59812	100nF 20% 50V 0603
2859	2238 586 59812	100nF 20% 50V 0603
2860	2238 586 59812	100nF 20% 50V 0603
2861	2238 586 59812	100nF 20% 50V 0603
2862	2238 586 59812	100nF 20% 50V 0603
2863	2238 586 59812	100nF 20% 50V 0603
2864	2238 586 59812	100nF 20% 50V 0603
2865	2238 586 59812	100nF 20% 50V 0603
2866	2238 586 59812	100nF 20% 50V 0603
2867	2238 586 59812	100nF 20% 50V 0603
2868	2238 586 59812	100nF 20% 50V 0603
2869	2238 586 59812	100nF 20% 50V 0603
2870	2238 586 59812	100nF 20% 50V 0603
2871	2020 021 91557	100µF 20% 16V
2872	2238 586 59812	100nF 20% 50V 0603
2873	2238 586 59812	100nF 20% 50V 0603
2874	2238 586 59812	100nF 20% 50V 0603
2875	2238 586 59812	100nF 20% 50V 0603
2876	2238 586 59812	100nF 20% 50V 0603
2877	2238 586 59812	100nF 20% 50V 0603
2878	2238 586 59812	100nF 20% 50V 0603
2879	2238 586 59812	100nF 20% 50V 0603
2880	2238 586 59812	100nF 20% 50V 0603
2881	3198 034 02790	47pF 1% 50V 0402
2882	2238 586 59812	100nF 20% 50V 0603
2883	2238 586 59812	100nF 20% 50V 0603
2884	2238 586 59812	100nF 20% 50V 0603
2885	2238 586 59812	100nF 20% 50V 0603
2886	2238 586 59812	100nF 20% 50V 0603
2887	2238 586 59812	100nF 20% 50V 0603
2888	2238 586 59812	100nF 20% 50V 0603
2889	2020 021 91557	100µF 20% 16V
2890	2238 586 59812	100nF 20% 50V 0603
2891	2238 586 59812	100nF 20% 50V 0603
2892	2238 586 59812	100nF 20% 50V 0603
2893	2238 586 59812	100nF 20% 50V 0603
2894	2238 586 59812	100nF 20% 50V 0603
2895	2020 021 91854	10µF 20% 16V
2896	2020 021 91557	100µF 20% 16V
2897	2238 586 59812	100nF 20% 50V 0603
2898	2020 021 91854	10µF 20% 16V
2899	2238 586 59812	100nF 20% 50V 0603
2914	2238 586 59812	100nF 20% 50V 0603
2917	2238 586 59812	100nF 20% 50V 0603
2919	2020 021 91557	100µF 20% 16V
2920	2238 586 59812	100nF 20% 50V 0603
2921	2238 586 59812	100nF 20% 50V 0603
2922	2020 552 96628	10nF 10% 16V 0402
2923	2020 552 96628	10nF 10% 16V 0402
2924	2238 586 59812	100nF 20% 50V 0603
2925	2020 552 96618	1nF 10% 50V 0402
2926	2238 869 15101	100pF 5% 50V 0402
2927	2238 869 15101	100pF 5% 50V 0402
2928	2238 869 15101	100pF 5% 50V 0402
2937	2020 021 91557	100µF 20% 16V
2939	2020 021 91557	100µF 20% 16V
2A00	2020 552 96618	1nF 10% 50V 0402
2A01	2020 552 96618	1nF 10% 50V 0402
2A02	2022 552 05679	1µF 10% 16V 0805
2A03	2020 021 91557	100µF 20% 16V
2A04	2022 552 05679	1µF 10% 16V 0805
2A05	2020 021 91557	100µF 20% 16V
2A06	2020 552 96618	1nF 10% 50V 0402
2A07	2020 552 96618	1nF 10% 50V 0402
2A08	2022 552 05679	1µF 10% 16V 0805
2A10	2238 586 59812	100nF 20% 50V 0603
2A11	2238 586 59812	100nF 20% 50V 0603
2A12	2238 586 59812	100nF 20% 50V 0603
2A13	2238 586 59812	100nF 20% 50V 0603
2A14	2020 552 96618	1nF 10% 50V 0402
2A15	2020 021 91557	100µF 20% 16V
2A16	2238 586 59812	100nF 20% 50V 0603
2A17	2020 552 96618	1nF 10% 50V 0402
2A18	2020 021 91557	100µF 20% 16V
2A19	3198 034 02790	47pF 1% 50V 0402
2A20	2022 552 05679	1µF 10% 16V 0805
2A21	2238 586 59812	100nF 20% 50V 0603
2A22	2238 586 59812	100nF 20% 50V 0603
2A23	2238 586 59812	100nF 20% 50V 0603
2A24	2238 586 59812	100nF 20% 50V 0603
2A25	2238 869 15101	100pF 5% 50V 0402
2A26	2022 552 05679	1µF 10% 16V 0805
2A26	2238 586 59812	100nF 20% 50V 0603
2A27	2020 552 96618	1nF 10% 50V 0402
2A29	2238 869 15101	100pF 5% 50V 0402
2A30	2238 869 15101	100pF 5% 50V 0402
2A31	2022 552 05679	1µF 10% 16V 0805
2A31	2238 586 59812	100nF 20% 50V 0603
2A32	2238 869 15101	100pF 5% 50V 0402
2A33	2238 586 59812	100nF 20% 50V 0603
2A34	2238 586 59812	100nF 20% 50V 0603
2A35	2020 552 96618	1nF 10% 50V 0402
2A36	2238 869 15101	100pF 5% 50V 0402
2A37	2238 869 15101	100pF 5% 50V 0402
2A38	2022 552 05679	1µF 10% 16V 0805
2A39	2022 552 05679	1µF 10% 16V 0805
2A40	2238 586 59812	100nF 20% 50V 0603
2A41	2020 021 91854	10µF 20% 16V
2A42	2020 021 91854	10µF 20% 16V
2A43	2020 021 91854	10µF 20% 16V
2A44	2238 586 59812	100nF 20% 50V 0603
2A45	2238 586 59812	100nF 20% 50V 0603
2A46	2022 552 05679	1µF 10% 16V 0805
2A47	2020 552 96618	1nF 10% 50V 0402
2A47	2022 552 05679	1µF 10% 16V 0805
2A49	2022 552 05679	1µF 10% 16V 0805
2A50	2020 552 96618	1nF 10% 50V 0402
2A53	2022 552 05679	1µF 10% 16V 0805
2A54	2020 552 96618	1nF 10% 50V 0402
2A56	2022 552 05679	1µF 10% 16V 0805
2A59	2022 552 05679	1µF 10% 16V 0805
2A62	2022 552 05679	1µF 10% 16V 0805
2A64	2238 586 59812	100nF 20% 50V 0603
2A66	2022 552 05679	1µF 10% 16V 0805
2A69	2022 552 05679	1µF 10% 16V 0805
2A70	2022 552 05679	1µF 10% 16V 0805
2A72	2022 552 05679	1µF 10% 16V 0805
2A74	2022 552 05679	1µF 10% 16V 0805
2A75	2022 552 05679	1µF 10% 16V 0805
2A76	2238 586 59812	100nF 20% 50V 0603
2A79	2238 586 59812	100nF 20% 50V 0603
2A80	2022 552 05679	1µF 10% 16V 0805
2A81	2020 552 96618	1nF 10% 50V 0402
2A83	2238 586 59812	100nF 20% 50V 0603
2A88	2238 586 59812	100nF 20% 50V 0603
2A89	2022 552 05679	1µF 10% 16V 0805
2A90	4822 124 12313	22µF 10V 20%
2A91	2238 869 15101	100pF 5% 50V 0402
2A92	2022 552 05679	1µF 10% 16V 0805
2A95	2238 869 15221	220pF 1% 50V 0402
2A99	2022 552 05679	1µF 10% 16V 0805
2AA5	2238 869 15101	100pF 5% 50V 0402
2AA6	2020 552 96618	1nF 10% 50V 0402
2AA7	2020 552 96618	1nF 10% 50V 0402
2AA9	3198 034 05680	5.6pF 1% 50V 0402
2AB0	3198 034 05680	5.6pF 1% 50V 0402
2AB2	2020 552 96618	1nF 10% 50V 0402
2AB3	2022 552 05679	1µF 10% 16V 0805
2AB4	2022 552 05679	1µF 10% 16V 0805
2AB5	2020 021 91854	10µF 20% 16V
2AB6	2020 552 96618	1nF 10% 50V 0402
2AB7	2020 552 96618	1nF 10% 50V 0402
2AB8	2022 552 05679	1µF 10% 16V 0805
2AF3	4822 124 12095	100µF 20% 16V
2AF4	2238 586 59812	100nF 20% 50V 0603
2C00	2238 586 59812	100nF 20% 50V 0603
2C01	2238 586 59812	100nF 20% 50V 0603
2C02	2238 586 59812	100nF 20% 50V 0603
2D04	2020 552 96618	1nF 10% 50V 0402
2D09	2238 586 59812	100nF 20% 50V 0603
2D10	2022 552 05679	1µF 10% 16V 0805
2D11	2020 552 96628	10nF 10% 16V 0402
2D12	2020 552 96628	10nF 10% 16V 0402
2E01	2238 586 59812	100nF 20% 50V 0603
2E02	2238 586 59812	100nF 20% 50V 0603
2E02	3198 035 71040	100nF 10% 16V 0402
2E03	2238 586 59812	100nF 20% 50V 0603
2E04	2238 586 59812	100nF 20% 50V 0603
2E06	2238 586 59812	100nF 20% 50V 0603
2E07	2238 586 59812	100nF 20% 50V 0603
2E08	2238 586 59812	100nF 20% 50V 0603
2E09	2238 586 59812	100nF 20% 50V 0603
2E10	2238 586 59812	100nF 20% 50V 0603
2E11	2238 586 59812	100nF 20% 50V 0603
2E12	2238 586 59812	100nF 20% 50V 0603
2E13	2238 586 59812	100nF 20% 50V 0603
2E14	2238 586 59812	100nF 20% 50V 0603
2E15	2238 586 59812	100nF 20% 50V 0603
2E16	2238 586 59812	100nF 20% 50V 0603
2E17	2238 586 59812	100nF 20% 50V 0603
2E18	2238 586 59812	100nF 20% 50V 0603
2E19	2238 586 59812	100nF 20% 50V 0603
2E20	2238 586 59812	100nF 20% 50V 0603
2E21	3198 017 34730	47nF 16V 0603
2E22	4822 126 14519	22pF 5% 50V 0402
2E23	3198 017 34730	47nF 16V 0603
2E24	4822 126 14519	22pF 5% 50V 0402
2E25	3198 017 34730	47nF 16V 0603
2E26	4822 126 14519	22pF 5% 50V 0402
2E27	2238 586 59812	100nF 20% 50V 0603
2E28	3198 017 34730	47nF 16V 0603
2E29	3198 017 33330	33nF 20% 16V 0603
2E30	3198 035 14720	4.7nF 5% 25V 0402
2E34	3198 035 03320	3.3nF 5% 50V 0402
2E35	2238 586 59812	100nF 20% 50V 0603
2E39	2238 869 15109	10pF 5% 50V 0402
2E41	2022 552 05679	1µF 10% 16V 0805
2E41	2238 586 59812	100nF 20% 50V 0603
2E42	2020 552 96628	10nF 10% 16V 0402
2E43	2238 586 59812	100nF 20% 50V 0603
2E49	2238 586 59812	100nF 20% 50V 0603
2E50	4822 124 23237	22µF 6.3V
2E50	4822 124 81058	47µF 20% 4V
2E51	2022 552 05679	1µF 10% 16V 0805
2E52	2238 586 59812	100nF 20% 50V 0603
2E54	2238 586 59812	100nF 20% 50V 0603
2E55	2022 552 05679	1µF 10% 16V 0805
2E56	2020 552 96628	10nF 10% 16V 0402
2E57	2020 552 96628	10nF 10% 16V 0402
2E58	2020 552 96628	10nF 10% 16V 0402
2E59	2020 552 96628	10nF 10% 16V 0402
2E62	2238 586 59812	100nF 20% 50V 0603
2E65	2238 586 59812	100nF 20% 50V 0603
2E66	2238 586 59812	100nF 20% 50V 0603
2E67	2238 586 59812	100nF 20% 50V 0603
2E68	2020 552 96628	10nF 10% 16V 0402
2E69	2020 552 96628	10nF 10% 16V 0402
2E70	2020 552 96628	10nF 10% 16V 0402
2E71	2020 552 96628	10nF 10% 16V 0402
2E72	2238 586 59812	100nF 20% 50V 0603
2E73	2238 586 59812	100nF 20% 50V 0603
2E74	2238 586 59812	100nF 20% 50V 0603
2E75	2238 586 59812	100nF 20% 50V 0603
2E77	2238 586 59812	100nF 20% 50V 0603
2E78	2238 586 59812	100nF 20% 50V 0603
2E79	2238 586 59812	100nF 20% 50V 0603
2E80	2238 586 59812	100nF 20% 50V 0603
2E81	2022 552 05679	1µF 10% 16V 0805
2E82	2238 586 59812	100nF 20% 50V 0603
2E83	2238 586 59812	100nF 20% 50V 0603
2E84	2238 586 59812	100nF 20% 50V 0603
2E86	2238 586 59812	100nF 20% 50V 0603
2E87	4822 124 12095	100µF 20% 16V
2E88	2238 869 15101	100pF 5% 50V 0402
2E89	2238 869 15101	100pF 5% 50V 0402
2E90	2238 869 15101	100pF 5% 50V 0402
2E91	2238 869 15101	100pF 5% 50V 0402
2E92	2238 869 15101	100pF 5% 50V 0402
2E93	2238 586 59812	100nF 20% 50V 0603
2E94	2238 586 59812	100nF 20% 50V 0603
2E96	2238 869 15101	100pF 5% 50V 0402
2E97	2238 869 15101	100pF 5% 50V 0402
2E98	2238 869 15101	100pF 5% 50V 0402
2E99	4822 124 81058	47µF 20% 4V
2I00	2238 869 15101	100pF 5% 50V 0402
2I11	2022 552 05679	1µF 10% 16V 0805
2I12	2022 552 05679	1µF 10% 16V 0805
2I12	4822 126 14585	100nF 10% 0805 50V
2I13	2020 552 96631	15nF 10% 16V 0402
2I14	2020 552 96623	2.2nF 10% 50V 0402
2I15	2022 552 05679	1µF 10% 16V 0805
2I18	2238 869 15101	100pF 5% 50V 0402
2I19	2238 869 15101	100pF 5% 50V 0402
2I21	2238 869 15101	100pF 5% 50V 0402
2I22	2238 869 15101	100pF 5% 50V 0402
2I23	2238 869 15101	100pF 5% 50V 0402
2I24	2238 869 15101	100pF 5% 50V 0402
2I26	2238 869 15101	100pF 5% 50V 0402
2I27	2238 869 15101	100pF 5% 50V 0402
2I30	2238 869 15101	100pF 5% 50V 0402
2I32	4822 124 23002	10µF 16V
2I33	2020 552 96618	1nF 10% 50V 0402

2I34	2022 552 05679	1µF 10% 16V 0805
2I34	4822 124 23002	10µF 16V
2I35	2022 552 05679	1µF 10% 16V 0805
2I36	2238 869 15101	100pF 5% 50V 0402
2I38	2238 869 15101	100pF 5% 50V 0402
2I40	2238 586 59812	100nF 20% 50V 0603
2I41	2022 552 05679	1µF 10% 16V 0805
2I43	2022 552 05679	1µF 10% 16V 0805
2I44	2238 586 59812	100nF 20% 50V 0603
2I45	2238 586 59812	100nF 20% 50V 0603
2I46	2020 552 96618	1nF 10% 50V 0402
2I47	2020 552 96618	1nF 10% 50V 0402
2I49	2238 586 59812	100nF 20% 50V 0603
2I51	2238 586 59812	100nF 20% 50V 0603
2I53	2238 586 59812	100nF 20% 50V 0603
2I57	2238 869 15101	100pF 5% 50V 0402
2I58	2238 869 15101	100pF 5% 50V 0402
2I59	2238 586 59812	100nF 20% 50V 0603
2I63	2238 586 59812	100nF 20% 50V 0603
2I65	2238 869 15101	100pF 5% 50V 0402
2I69	2238 869 75829	82pF 5% 50V 0402
2I69	4822 126 14324	33pF 5% 50V 0402
2I70	2238 869 75829	82pF 5% 50V 0402
2I70	4822 126 14324	33pF 5% 50V 0402
2I71	2022 552 05679	1µF 10% 16V 0805
2I72	2022 552 05679	1µF 10% 16V 0805
2I73	2022 552 05679	1µF 10% 16V 0805
2I75	2022 552 05679	1µF 10% 16V 0805
2I76	2022 552 05679	1µF 10% 16V 0805
2I77	2022 552 05679	1µF 10% 16V 0805
2I78	2022 552 05679	1µF 10% 16V 0805
2I79	5322 124 41945	22µF 20% 35V
2I80	2022 552 05679	1µF 10% 16V 0805
2I81	2022 552 05679	1µF 10% 16V 0805
2I82	2022 552 05679	1µF 10% 16V 0805
2I84	2022 552 05679	1µF 10% 16V 0805
2I85	2022 552 05679	1µF 10% 16V 0805
2I86	2238 869 75829	82pF 5% 50V 0402
2I86	4822 126 14324	33pF 5% 50V 0402
2I90	2020 004 90283	10µF 20% 10V 1206
2I91	2020 552 96628	10nF 10% 16V 0402
2I92	2022 552 05679	1µF 10% 16V 0805
2I92	2238 586 59812	100nF 20% 50V 0603
2I93	2238 586 59812	100nF 20% 50V 0603
2I94	2238 586 59812	100nF 20% 50V 0603
2I95	2238 586 59812	100nF 20% 50V 0603
2I96	2020 552 96618	1nF 10% 50V 0402
2I97	2238 586 59812	100nF 20% 50V 0603
2I98	2238 586 59812	100nF 20% 50V 0603
2IA0	2022 552 05679	1µF 10% 16V 0805
2IA0	4822 124 23002	10µF 16V
2IA1	2022 552 05679	1µF 10% 16V 0805
2IA1	4822 124 23002	10µF 16V
2IA4	2022 552 05679	1µF 10% 16V 0805
2IA4	4822 126 14585	100nF 10% 0805 50V
2IA5	2020 021 91557	100µF 20% 16V
2IA7	2020 552 96618	1nF 10% 50V 0402
2IA9	2020 021 91557	100µF 20% 16V
2IB3	2238 586 59812	100nF 20% 50V 0603
2IB5	4822 124 11946	22µF 20% 16V
2IB6	3198 034 04790	27pF 1% 50V 0402
2IB8	2238 586 59812	100nF 20% 50V 0603
2IB9	2238 586 59812	100nF 20% 50V 0603
2IC0	4822 124 23002	10µF 16V
2IC1	4822 124 23002	10µF 16V
2IC3	2238 586 59812	100nF 20% 50V 0603
2IC4	2238 586 59812	100nF 20% 50V 0603
2IC5	2238 586 59812	100nF 20% 50V 0603
2IC6	3198 034 04790	27pF 1% 50V 0402
2IC7	3198 034 04790	27pF 1% 50V 0402
2IC8	4822 124 11946	22µF 20% 16V
2IC9	4822 126 13883	220pF 5% 50V
2ID0	2022 552 05679	1µF 10% 16V 0805
2ID0	4822 124 11946	22µF 20% 16V
2ID1	2022 552 05679	1µF 10% 16V 0805
2ID1	4822 124 11946	22µF 20% 16V
2ID2	2022 552 05679	1µF 10% 16V 0805
2ID2	4822 124 11946	22µF 20% 16V
2ID3	2022 552 05679	1µF 10% 16V 0805
2ID3	4822 124 11946	22µF 20% 16V
2ID4	2022 552 05679	1µF 10% 16V 0805
2ID4	4822 124 11946	22µF 20% 16V
2ID5	2022 552 05679	1µF 10% 16V 0805
2ID5	4822 124 11946	22µF 20% 16V
2ID6	2020 004 90283	10µF 20% 10V 1206
2ID6	4822 124 23002	10µF 16V
2ID7	2020 552 96618	1nF 10% 50V 0402
2ID8	2238 586 59812	100nF 20% 50V 0603
2ID9	2238 586 59812	100nF 20% 50V 0603
2IDA	2020 004 90297	100µF 20% 16V
2IDC	2020 004 90297	100µF 20% 16V
2IE1	2238 586 59812	100nF 20% 50V 0603
2IE2	2238 586 59812	100nF 20% 50V 0603
2IE3	2022 552 05679	1µF 10% 16V 0805
2IE4	2238 586 59812	100nF 20% 50V 0603
2IE5	2238 586 59812	100nF 20% 50V 0603
2IE6	2238 586 59812	100nF 20% 50V 0603
2IE7	2022 552 05679	1µF 10% 16V 0805
2IE8	2022 552 05679	1µF 10% 16V 0805
2IE9	2020 552 96618	1nF 10% 50V 0402
2IF1	2238 586 59812	100nF 20% 50V 0603
2IF2	2238 586 59812	100nF 20% 50V 0603
2IF3	2238 586 59812	100nF 20% 50V 0603
2IF4	4822 124 80151	47µF 16V
2IF5	2238 586 59812	100nF 20% 50V 0603
2IF7	2020 552 96326	220nF 10% 16V
2IF8	2022 552 05679	1µF 10% 16V 0805
2IF8	4822 124 11946	22µF 20% 16V
2IF9	4822 124 11946	22µF 20% 16V
2IG0	2020 552 96637	10µF 10% 6.3V 0805
2IG0	2022 552 05679	1µF 10% 16V 0805
2IG2	5322 124 41945	22µF 20% 35V
2IG3	2020 552 96618	1nF 10% 50V 0402
2IG4	2020 552 96618	1nF 10% 50V 0402
2IG5	2238 586 59812	100nF 20% 50V 0603
2IG6	2020 552 96618	1nF 10% 50V 0402
2IG7	2238 586 59812	100nF 20% 50V 0603
2IG8	2238 586 59812	100nF 20% 50V 0603
2IG9	2238 586 59812	100nF 20% 50V 0603
2IH0	3198 017 34730	47nF 16V 0603
2IH1	2238 586 59812	100nF 20% 50V 0603
2IH2	2020 552 96618	1nF 10% 50V 0402
2IH3	2020 552 96618	1nF 10% 50V 0402
2IH4	2022 552 05679	1µF 10% 16V 0805
2IH5	2238 586 59812	100nF 20% 50V 0603
2IH6	2022 552 05679	1µF 10% 16V 0805
2IH6	4822 124 11946	22µF 20% 16V
2IH7	4822 124 11946	22µF 20% 16V
2IH8	2022 552 05679	1µF 10% 16V 0805
2IH8	4822 124 11946	22µF 20% 16V
2IH9	4822 124 11946	22µF 20% 16V
2IK1	2238 780 15654	220nF 10% 16V 0805
2IK5	2238 586 59812	100nF 20% 50V 0603
2IK6	2238 586 59812	100nF 20% 50V 0603
2IK7	2238 586 59812	100nF 20% 50V 0603
2IK8	2022 552 05679	1µF 10% 16V 0805
2IK9	2022 552 05679	1µF 10% 16V 0805
2IN8	2238 586 59812	100nF 20% 50V 0603
2IN9	2238 586 59812	100nF 20% 50V 0603
2IP0	2238 586 59812	100nF 20% 50V 0603
2IP8	2238 586 59812	100nF 20% 50V 0603
2IQ5	2020 021 91557	100µF 20% 16V
2IQ6	2020 552 96628	10nF 10% 16V 0402
2IQ7	4822 124 23002	10µF 16V
2IQ8	2238 586 59812	100nF 20% 50V 0603
2IQ9	2022 552 05679	1µF 10% 16V 0805
2IR1	2238 586 59812	100nF 20% 50V 0603
2IR2	2022 552 05679	1µF 10% 16V 0805
2IR3	2238 586 59812	100nF 20% 50V 0603
2IR4	2238 586 59812	100nF 20% 50V 0603
2IR5	2022 552 05679	1µF 10% 16V 0805
2IR6	2238 586 59812	100nF 20% 50V 0603
2IR7	2022 552 05679	1µF 10% 16V 0805
2IR8	2238 586 59812	100nF 20% 50V 0603
2IR9	2020 021 91557	100µF 20% 16V
2IS0	2022 552 05679	1µF 10% 16V 0805
2IS1	2022 552 05679	1µF 10% 16V 0805
2IS2	2022 552 05679	1µF 10% 16V 0805
2IS3	2022 552 05679	1µF 10% 16V 0805
2IS4	2022 552 05679	1µF 10% 16V 0805
2IS5	2022 552 05679	1µF 10% 16V 0805
2IS6	4822 124 12095	100µF 20% 16V
2ISA	2238 787 15641	22nF 5% 16V 0402
2L00	4822 124 23237	22µF 6.3V
2L01	2238 586 59812	100nF 20% 50V 0603
2L02	2238 586 59812	100nF 20% 50V 0603
2L03	2238 586 59812	100nF 20% 50V 0603
2L04	2238 586 59812	100nF 20% 50V 0603
2L05	2238 586 59812	100nF 20% 50V 0603
2L06	2238 586 59812	100nF 20% 50V 0603
2L07	2238 586 59812	100nF 20% 50V 0603
2L08	2238 586 59812	100nF 20% 50V 0603
2L09	2238 586 59812	100nF 20% 50V 0603
2L10	2238 586 59812	100nF 20% 50V 0603
2L11	2238 586 59812	100nF 20% 50V 0603
2L12	2238 586 59812	100nF 20% 50V 0603
2L13	2238 586 59812	100nF 20% 50V 0603
2L14	2238 586 59812	100nF 20% 50V 0603
2L15	2238 586 59812	100nF 20% 50V 0603
2L16	2238 586 59812	100nF 20% 50V 0603
2L17	2238 586 59812	100nF 20% 50V 0603
2L19	4822 124 23237	22µF 6.3V
2L20	2238 586 59812	100nF 20% 50V 0603
2L21	2238 586 59812	100nF 20% 50V 0603
2L25	2238 586 59812	100nF 20% 50V 0603
2L26	3198 017 33330	33nF 20% 16V 0603
2L27	3198 035 14720	4.7nF 5% 25V 0402
2L28	3198 034 03990	39pF 1% 50V 0402
2L28	4822 126 14519	22pF 5% 50V 0402
2L29	3198 034 03990	39pF 1% 50V 0402
2L29	4822 126 14519	22pF 5% 50V 0402
2L30	3198 034 03990	39pF 1% 50V 0402
2L30	4822 126 14519	22pF 5% 50V 0402
2L31	3198 017 34730	47nF 16V 0603
2L32	3198 035 03320	3.3nF 5% 50V 0402
2L33	2238 586 59812	100nF 20% 50V 0603
2L34	2238 586 59812	100nF 20% 50V 0603
2L51	4822 124 23237	22µF 6.3V
2L52	3198 017 34730	47nF 16V 0603
2L54	3198 017 34730	47nF 16V 0603
2L56	2020 552 96618	1nF 10% 50V 0402
2L57	3198 017 34730	47nF 16V 0603
2L58	4822 124 23237	22µF 6.3V
2L60	3198 034 04790	27pF 1% 50V 0402
2P00	2238 586 59812	100nF 20% 50V 0603
2P01	2020 004 90297	100µF 20% 16V
2P02	2238 586 59812	100nF 20% 50V 0603
2P03	3198 035 14720	4.7nF 5% 25V 0402
2P04	3198 035 14720	4.7nF 5% 25V 0402
2P09	2022 552 05679	1µF 10% 16V 0805
2P10	2238 586 59812	100nF 20% 50V 0603
2P11	2238 586 59812	100nF 20% 50V 0603
2P12	2238 586 59812	100nF 20% 50V 0603
2P13	2238 586 59812	100nF 20% 50V 0603
2P14	2238 586 59812	100nF 20% 50V 0603
2P15	2238 586 59812	100nF 20% 50V 0603
2P16	2238 586 59812	100nF 20% 50V 0603
2P18	3198 034 01290	12pF 1% 50V 0402
2P19	2238 586 59812	100nF 20% 50V 0603
2P20	2022 552 05679	1µF 10% 16V 0805
2P21	2022 552 05679	1µF 10% 16V 0805
2P22	2238 787 15641	22nF 5% 16V 0402
2P23	2238 586 59812	100nF 20% 50V 0603
2P24	2238 586 59812	100nF 20% 50V 0603
2P25	3198 032 55130	10µF 20% 20V
2P26	2238 787 15641	22nF 5% 16V 0402
2P27	2022 552 05679	1µF 10% 16V 0805
2P28	2238 586 59812	100nF 20% 50V 0603
2P29	2022 552 05679	1µF 10% 16V 0805
2P30	3198 035 14720	4.7nF 5% 25V 0402
2P31	2238 586 59812	100nF 20% 50V 0603
2P32	2238 586 59812	100nF 20% 50V 0603
2P33	2238 586 59812	100nF 20% 50V 0603
2P34	2238 586 59812	100nF 20% 50V 0603
2P35	2238 586 59812	100nF 20% 50V 0603
2P36	3198 035 03320	3.3nF 5% 50V 0402
2P43	3198 034 01290	12pF 1% 50V 0402
2P44	3198 034 01280	1.2pF 1% 50V 0402
2P45	2238 586 59812	100nF 20% 50V 0603
2P46	2238 586 59812	100nF 20% 50V 0603
2P47	2238 586 59812	100nF 20% 50V 0603
2P50	2238 586 59812	100nF 20% 50V 0603
2P51	2238 586 59812	100nF 20% 50V 0603
2P52	3198 034 05690	56pF 1% 50V 0402
2P53	2238 586 59812	100nF 20% 50V 0603
2P54	3198 017 36830	68nF 10% 16V 0603
2P55	3198 035 26820	6.8nF 10% 16V 0402
2P57	2022 552 05679	1µF 10% 16V 0805
2P57	3198 017 34730	47nF 16V 0603
2P58	2022 552 05679	1µF 10% 16V 0805
2P58	3198 017 34730	47nF 16V 0603
2P60	2022 552 05679	1µF 10% 16V 0805
2P65	2020 004 90283	10µF 20% 10V 1206
2P65	2020 004 90297	100µF 20% 16V
2P66	2238 586 59812	100nF 20% 50V 0603
2P70	2238 586 59812	100nF 20% 50V 0603
2P71	2020 004 90283	10µF 20% 10V 1206
2P72	2022 552 05679	1µF 10% 16V 0805
2P73	2022 552 05679	1µF 10% 16V 0805
2P74	2238 586 59812	100nF 20% 50V 0603
2P75	2022 552 05679	1µF 10% 16V 0805
2P76	3198 034 08280	8.2pF 50V
2P77	2238 586 59812	100nF 20% 50V 0603
2P78	2238 586 59812	100nF 20% 50V 0603
2P79	2022 552 05679	1µF 10% 16V 0805
2P80	4822 124 12095	100µF 20% 16V
2P81	2238 586 59812	100nF 20% 50V 0603
2P87	2022 552 05679	1µF 10% 16V 0805
2P88	4822 126 14519	22pF 5% 50V 0402
2P90	4822 124 12095	100µF 20% 16V
2P97	2020 552 96623	2.2nF 10% 50V 0402
2P98	4822 124 12095	100µF 20% 16V
2P99	4822 124 12095	100µF 20% 16V
2PA0	2022 552 05679	1µF 10% 16V 0805
2PA1	3198 034 01510	150pF 1% 50V 0402
2PA2	2238 586 59812	100nF 20% 50V 0603
2PA3	3198 034 01510	150pF 1% 50V 0402
2PA4	2238 586 59812	100nF 20% 50V 0603
2PA5	3198 034 01510	150pF 1% 50V 0402
2PA6	2238 586 59812	100nF 20% 50V 0603
2PA7	2238 586 59812	100nF 20% 50V 0603
2PA8	2238 586 59812	100nF 20% 50V 0603

2PA9	2020 004 90283	10µF 20% 10V 1206
2PB0	2022 552 05679	1µF 10% 16V 0805
2PB1	3198 034 01510	150pF 1% 50V 0402
2PB2	2238 586 59812	100nF 20% 50V 0603
2PB3	2238 586 59812	100nF 20% 50V 0603
2PB4	3198 034 01510	150pF 1% 50V 0402
2PB6	2238 586 59812	100nF 20% 50V 0603
2PB7	2238 586 59812	100nF 20% 50V 0603
2PB8	4822 124 23002	10µF 16V
2PB9	2238 586 59812	100nF 20% 50V 0603
2PC0	4822 124 23002	10µF 16V
2PC1	2238 586 59812	100nF 20% 50V 0603
2PC2	2238 586 59812	100nF 20% 50V 0603
2PC4	2238 586 59812	100nF 20% 50V 0603
2PC5	2238 586 59812	100nF 20% 50V 0603
2PC7	2238 586 59812	100nF 20% 50V 0603
2PC8	2238 586 59812	100nF 20% 50V 0603
2PC9	2238 586 59812	100nF 20% 50V 0603
2PD0	2020 004 90283	10µF 20% 10V 1206
2PD1	2238 586 59812	100nF 20% 50V 0603
2PD3	2238 586 59812	100nF 20% 50V 0603
2PD4	2238 586 59812	100nF 20% 50V 0603
2PD5	4822 124 23002	10µF 16V
2PD6	4822 124 23002	10µF 16V
2PD7	2238 586 59812	100nF 20% 50V 0603
2PD9	2238 586 59812	100nF 20% 50V 0603
2PE4	2238 586 59812	100nF 20% 50V 0603
2PE5	2238 586 59812	100nF 20% 50V 0603
2PE6	2238 586 59812	100nF 20% 50V 0603
2PE7	2022 552 05679	1µF 10% 16V 0805
2PE7	2238 586 59812	100nF 20% 50V 0603
2PE8	2022 552 05679	1µF 10% 16V 0805
2PE8	2238 586 59812	100nF 20% 50V 0603
2PE9	2022 552 05679	1µF 10% 16V 0805
2PE9	4822 126 14585	100nF 10% 0805 50V
2PF1	4822 124 23002	10µF 16V
2PF2	2238 586 59812	100nF 20% 50V 0603
2PF3	3198 034 01510	150pF 1% 50V 0402
2PF7	2020 004 90283	10µF 20% 10V 1206
2PF8	4822 124 23002	10µF 16V
2PF9	4822 124 23002	10µF 16V
2PG0	2022 552 05679	1µF 10% 16V 0805
2PG1	2022 552 05679	1µF 10% 16V 0805
2PG2	3198 034 04790	27pF 1% 50V 0402
2PG5	2238 586 59812	100nF 20% 50V 0603
2PG6	2020 004 90283	10µF 20% 10V 1206
2T02	2238 586 15641	22nF 10% 50V 0603
2T04	2238 586 15641	22nF 10% 50V 0603
2T05	3198 032 28210	220µF 20% 6.3V
2T06	2020 552 96628	10nF 10% 16V 0402
2T09	3198 017 34730	47nF 16V 0603
2T10	3198 017 34730	47nF 16V 0603
2T11	2022 009 00656	47µF 20% 6,3V
2T12	2238 586 59812	100nF 20% 50V 0603
2T13	2020 552 96628	10nF 10% 16V 0402
2T13	5322 126 11583	10nF 10% 50V 0603
2T14	5322 126 11583	10nF 10% 50V 0603
2T15	2022 552 05679	1µF 10% 16V 0805
2T16	2022 552 05679	1µF 10% 16V 0805
2T19	3198 032 28210	220µF 20% 6.3V
2T22	2022 009 00656	47µF 20% 6,3V
2U03	2022 552 05679	1µF 10% 16V 0805
2U04	4822 126 14583	470nF 10% 16V 0805
2U05	2020 552 96618	1nF 10% 50V 0402
2U06	2022 552 05635	22µF 10% 16V
2U07	2238 869 75829	82pF 5% 50V 0402
2U08	2022 552 05635	22µF 10% 16V
2U09	2020 552 96618	1nF 10% 50V 0402
2U10	2022 552 05635	22µF 10% 16V
2U11	2020 552 96618	1nF 10% 50V 0402
2U12	2020 552 96628	10nF 10% 16V 0402
2U13	2238 780 15654	220nF 10% 16V 0805
2U14	4822 126 14583	470nF 10% 16V 0805
2U15	4822 124 12095	100µF 20% 16V
2U16	3198 035 14720	4.7nF 5% 25V 0402
2U17	4822 126 14583	470nF 10% 16V 0805
2U18	3198 034 01210	120pF 1% 50V 0402
2U19	2238 586 59812	100nF 20% 50V 0603
2U20	2022 552 05679	1µF 10% 16V 0805
2U21	4822 126 14583	470nF 10% 16V 0805
2U22	2022 552 05679	1µF 10% 16V 0805
2U23	4822 124 12095	100µF 20% 16V
2U24	2020 552 96618	1nF 10% 50V 0402
2U25	2238 586 59812	100nF 20% 50V 0603
2U26	2238 586 59812	100nF 20% 50V 0603
2U27	3198 035 26820	6.8nF 10% 16V 0402
2U28	3198 035 26820	6.8nF 10% 16V 0402
2U30	3198 034 01210	120pF 1% 50V 0402
2U31	4822 124 12095	100µF 20% 16V
2U32	3198 035 03320	3.3nF 5% 50V 0402
2U33	2022 552 05679	1µF 10% 16V 0805
2U34	2238 787 15641	22nF 5% 16V 0402
2U35	2022 552 05679	1µF 10% 16V 0805
2U36	2238 586 59812	100nF 20% 50V 0603
2U37	2020 552 96623	2.2nF 10% 50V 0402
2U39	2238 586 59812	100nF 20% 50V 0603
2U40	2020 552 96623	2.2nF 10% 50V 0402
2U40	4822 126 14238	2.2nF 50V 0603
2U41	3198 035 26820	6.8nF 10% 16V 0402
2U42	3198 017 34730	47nF 16V 0603
2V11	3198 035 04710	470pF 50V 0402
2V12	3198 035 04710	470pF 50V 0402
2Y00	2238 869 15101	100pF 5% 50V 0402
2Y01	2238 869 15101	100pF 5% 50V 0402
2Y02	2238 869 15101	100pF 5% 50V 0402
2Y03	2238 869 15101	100pF 5% 50V 0402
2Y04	2238 869 15101	100pF 5% 50V 0402
2Y05	2238 869 15101	100pF 5% 50V 0402
2Y07	2238 869 15101	100pF 5% 50V 0402
2Y09	2238 869 15101	100pF 5% 50V 0402
2Y10	2238 869 15101	100pF 5% 50V 0402
2Y12	2238 869 15101	100pF 5% 50V 0402
2Y13	2238 586 59812	100nF 20% 50V 0603
2Y14	2238 869 15101	100pF 5% 50V 0402
2Y15	2238 869 15101	100pF 5% 50V 0402
2Y16	2238 869 15101	100pF 5% 50V 0402
2Y17	2238 869 15101	100pF 5% 50V 0402
2Y18	2238 869 15101	100pF 5% 50V 0402
2Y19	2238 869 15101	100pF 5% 50V 0402
2Y23	2238 869 15101	100pF 5% 50V 0402
2Y25	2238 869 15101	100pF 5% 50V 0402
2Y26	2238 869 15101	100pF 5% 50V 0402
2Y27	2020 552 96618	1nF 10% 50V 0402
2Y28	2020 552 96618	1nF 10% 50V 0402
2Y29	2020 552 96618	1nF 10% 50V 0402
2Y30	4822 124 12095	100µF 20% 16V
2Y31	4822 124 12095	100µF 20% 16V
2Y32	2020 552 96618	1nF 10% 50V 0402
2Y33	2020 552 96618	1nF 10% 50V 0402
2Y34	2238 869 15101	100pF 5% 50V 0402
2Y36	2238 869 15101	100pF 5% 50V 0402
2Y37	2238 869 15101	100pF 5% 50V 0402
2Y38	2238 869 15101	100pF 5% 50V 0402
2Y39	2238 869 15101	100pF 5% 50V 0402
2Y40	2238 869 15101	100pF 5% 50V 0402
2Y41	2238 869 15101	100pF 5% 50V 0402
2Y42	2238 869 15101	100pF 5% 50V 0402
2Y43	2238 869 15101	100pF 5% 50V 0402
2Y49	2238 869 15101	100pF 5% 50V 0402
2Y49	2238 869 15109	10pF 5% 50V 0402
2Y50	2238 869 15101	100pF 5% 50V 0402
2Y50	2238 869 15109	10pF 5% 50V 0402
2Y51	2238 869 15101	100pF 5% 50V 0402
2Y52	3198 035 71040	100nF 10% 16V 0402
2Y53	2238 869 15101	100pF 5% 50V 0402
2Z44	4822 126 14519	22pF 5% 50V 0402
2Z45	4822 126 14519	22pF 5% 50V 0402
2Z46	4822 126 14519	22pF 5% 50V 0402
2Z47	4822 126 14519	22pF 5% 50V 0402
2Z48	4822 126 14519	22pF 5% 50V 0402
2Z49	4822 126 14519	22pF 5% 50V 0402
2Z50	4822 126 14519	22pF 5% 50V 0402
2Z51	4822 126 14519	22pF 5% 50V 0402
2Z52	4822 126 14519	22pF 5% 50V 0402
2Z53	4822 126 14519	22pF 5% 50V 0402
2Z57	4822 117 13605	Jumper 0402
2Z58	2238 869 15101	100pF 5% 50V 0402
2Z58	4822 117 13605	Jumper 0402
2Z59	2238 869 15101	100pF 5% 50V 0402
2Z59	4822 117 13605	Jumper 0402
2Z60	2238 869 15101	100pF 5% 50V 0402
2Z61	2238 869 15101	100pF 5% 50V 0402
2Z62	2238 869 15101	100pF 5% 50V 0402
2Z62	4822 117 13605	Jumper 0402

–WW–

3001	3198 031 04720	4.7kΩ 5% 0402
3002	3198 031 04720	4.7kΩ 5% 0402
3003	4822 117 13525	24kΩ 1% 0.62W 0603
3005	4822 117 13606	10kΩ 5% 0.01W 0402
3006	4822 117 13543	470Ω 5% 0402
3007	2350 033 10471	4 x 470Ω 5%
3008	2350 033 10101	4 x 100Ω 5%
3008	2350 033 11221	4 x 220Ω 5%
3009	3198 031 01810	180Ω 5% 0402
3009	4822 117 13606	10kΩ 5% 0.01W 0402
3010	4822 117 13606	10kΩ 5% 0.01W 0402
3011	3198 031 04720	4.7kΩ 5% 0402
3012	2350 033 10101	4 x 100Ω 5%
3013	4822 117 13606	10kΩ 5% 0.01W 0402
3014	3198 031 06820	6.8kΩ 5% 0.01W 0402
3015	3198 031 04740	470kΩ 5% 0402
3016	2322 706 71502	1.5kΩ 1% 0402
3017	3198 031 04720	4.7kΩ 5% 0402
3018	4822 117 13606	10kΩ 5% 0.01W 0402
3019	3198 031 04720	4.7kΩ 5% 0402
3020	4822 117 13606	10kΩ 5% 0.01W 0402
3021	4822 117 13606	10kΩ 5% 0.01W 0402
3024	3198 031 02730	27kΩ 5% 0402
3025	4822 117 13596	220Ω 5% 0.01W 0402
3026	3198 031 04720	4.7kΩ 5% 0402
3027	3198 031 04730	47Ω 5% 0402
3029	2350 033 10101	4 x 100Ω 5%
3031	2350 033 10101	4 x 100Ω 5%
3033	4822 117 11297	100kΩ 5% 0.1W
3033	4822 117 13606	10kΩ 5% 0.01W 0402
3034	2350 033 10101	4 x 100Ω 5%
3035	2350 033 10101	4 x 100Ω 5%
3038	4822 117 13606	10kΩ 5% 0.01W 0402
3039	3198 031 01810	180Ω 5% 0402
3046	2350 033 10101	4 x 100Ω 5%
3048	2350 033 10101	4 x 100Ω 5%
3049	2350 033 10101	4 x 100Ω 5%
3050	2350 033 10101	4 x 100Ω 5%
3051	2350 033 10101	4 x 100Ω 5%
3052	2350 033 10101	4 x 100Ω 5%
3053	4822 117 13606	10kΩ 5% 0.01W 0402
3054	2350 033 10101	4 x 100Ω 5%
3055	2350 033 10101	4 x 100Ω 5%
3056	2350 033 10101	4 x 100Ω 5%
3057	2350 033 10101	4 x 100Ω 5%
3059	2322 704 66201	620Ω 1% 0603
3061	2350 033 10101	4 x 100Ω 5%
3062	4822 117 13606	10kΩ 5% 0.01W 0402
3064	2350 033 10101	4 x 100Ω 5%
3065	3198 031 04720	4.7kΩ 5% 0402
3066	3198 031 04730	47Ω 5% 0402
3067	3198 031 04740	470kΩ 5% 0402
3069	3198 031 01820	1.8kΩ 5% 0.01W 0402
3072	2350 033 10101	4 x 100Ω 5%
3073	2350 033 10471	4 x 470Ω 5%
3074	2350 033 10471	4 x 470Ω 5%
3076	2350 033 10471	4 x 470Ω 5%
3077	3198 031 04720	4.7kΩ 5% 0402
3078	2350 033 10471	4 x 470Ω 5%
3079	3198 031 01820	1.8kΩ 5% 0.01W 0402
3080	4822 117 13606	10kΩ 5% 0.01W 0402
3081	4822 117 13543	470Ω 5% 0402
3082	2350 033 10101	4 x 100Ω 5%
3083	2350 033 10101	4 x 100Ω 5%
3084	4822 117 13606	10kΩ 5% 0.01W 0402
3085	2350 033 10101	4 x 100Ω 5%
3086	2350 033 10101	4 x 100Ω 5%
3087	4822 117 13545	100Ω 1% 0402
3088	3198 031 01820	1.8kΩ 5% 0.01W 0402
3089	4822 117 13545	100Ω 1% 0402
3090	2350 033 10471	4 x 470Ω 5%
3092	3198 031 01820	1.8kΩ 5% 0.01W 0402
3093	4822 117 13606	10kΩ 5% 0.01W 0402
3097	4822 117 13543	470Ω 5% 0402
3099	2350 033 10471	4 x 470Ω 5%
3100	4822 117 13596	220Ω 5% 0.01W 0402
3101	4822 117 13596	220Ω 5% 0.01W 0402
3102	2350 033 10101	4 x 100Ω 5%
3103	4822 117 13543	470Ω 5% 0402
3304▲	2322 750 63908	3.9Ω 5% Fuse 1206
3370	4822 117 13545	100Ω 1% 0402
3371	4822 117 13546	47Ω 5% 0402
3372	4822 117 13543	470Ω 5% 0402
3376	4822 117 13545	100Ω 1% 0402
3377	4822 117 13545	100Ω 1% 0402
3378	3198 031 01530	15kΩ 5% 0.01W 0402
3382	3198 031 03910	390Ω 1% 0402
3382	4822 117 13543	470Ω 5% 0402
3385	4822 117 13543	470Ω 5% 0402
3393	4822 117 11297	100kΩ 5% 0.1W
3400▲	4822 117 11152	4.7Ω 5%
3401	4822 117 11297	100kΩ 5% 0.1W
3402▲	2322 750 63908	3.9Ω 5% Fuse 1206
3404	3198 031 05610	560Ω 5% 0.01W 0402
3405	4822 117 13548	1kΩ 5% 0402
3408	4822 117 13545	100Ω 1% 0402
3412▲	4822 117 11152	4.7Ω 5%
3413	3198 031 02710	270Ω 5% 0.1W 0402
3415	3198 031 08220	8.2kΩ 5% 0.5W
3418	3198 031 03910	390Ω 1% 0402
3419	3198 031 03910	390Ω 1% 0402
3420	4822 117 13548	1kΩ 5% 0402
3422	4822 117 13548	1kΩ 5% 0402
3436	3198 031 02710	270Ω 5% 0.1W 0402
3437	4822 117 13548	1kΩ 5% 0402
3439	3198 031 01220	1.2kΩ 5% 0.01W 0402
3441	4822 117 13601	22kΩ 5% 0402
3456	3198 031 04720	4.7kΩ 5% 0402
3457	3198 031 04720	4.7kΩ 5% 0402
3463	3198 031 01830	18kΩ 5% 0.01W 0402
3473	4822 117 13548	1kΩ 5% 0402
3474	3198 031 01090	10Ω 5% 0.01W 0402
3475▲	5322 117 11726	10Ω 5%
3476	3198 031 05610	560Ω 5% 0.01W 0402

3700	3198 031 02290	22Ω 5% 0.1W 0402
3701	4822 117 13548	1kΩ 5% 0402
3702	3198 031 01090	10Ω 5% 0.01W 0402
3703	3198 031 04720	4.7kΩ 5% 0402
3706	4822 117 13545	100Ω 1% 0402
3707	4822 117 13545	100Ω 1% 0402
3709	4822 117 13545	100Ω 1% 0402
3710	4822 117 13545	100Ω 1% 0402
3712	3198 031 04730	47Ω 5% 0402
3713	3198 031 01810	180Ω 5% 0402
3714	3198 031 01810	180Ω 5% 0402
3715	3198 031 01810	180Ω 5% 0402
3716	4822 117 11297	100kΩ 5% 0.1W
3717	4822 117 11297	100kΩ 5% 0.1W
3718	4822 117 11297	100kΩ 5% 0.1W
3719	3198 031 03320	3.3kΩ 5% 0402
3720	4822 117 13606	10kΩ 5% 0.01W 0402
3721	4822 117 13545	100Ω 1% 0402
3722	4822 117 13548	1kΩ 5% 0402
3724	4822 117 13545	100Ω 1% 0402
3725	3198 031 03320	3.3kΩ 5% 0402
3726	3198 031 01220	1.2kΩ 5% 0.01W 0402
3727	3198 031 01510	150Ω 5% 0.01W 0402
3728	3198 031 01510	150Ω 5% 0.01W 0402
3729	4822 117 13605	Jumper 0402
3730	3198 031 05610	560Ω 5% 0.01W 0402
3730	3198 031 06810	680Ω 5% 0.01W 0402
3732	3198 031 04730	47Ω 5% 0402
3733	4822 117 13548	1kΩ 5% 0402
3734	4822 117 13545	100Ω 1% 0402
3736	4822 117 13545	100Ω 1% 0402
3737	4822 117 13548	1kΩ 5% 0402
3738	4822 117 13548	1kΩ 5% 0402
3739	3198 031 01230	12kΩ 5% 0402
3740	3198 031 04720	4.7kΩ 5% 0402
3742	4822 117 13601	22kΩ 5% 0402
3743	4822 117 13606	10kΩ 5% 0.01W 0402
3744	4822 117 13602	2.2kΩ 5% 0.01W 0402
3745	4822 117 13548	1kΩ 5% 0402
3746	3198 031 03920	3.9kΩ 5% 0402
3747	3198 031 04730	47Ω 5% 0402
3748	2322 705 70124	120kΩ 5% 0402
3749	3198 031 03920	3.9kΩ 5% 0402
3750	3198 031 03920	3.9kΩ 5% 0402
3751	3198 031 03320	3.3kΩ 5% 0402
3752	4822 117 13605	Jumper 0402
3753	4822 117 13605	Jumper 0402
3754	4822 117 13545	100Ω 1% 0402
3755	3198 031 04720	4.7kΩ 5% 0402
3756	4822 117 13606	10kΩ 5% 0.01W 0402
3757	3198 031 01510	150Ω 5% 0.01W 0402
3758	3198 031 04720	4.7kΩ 5% 0402
3759	4822 117 13596	220Ω 5% 0.01W 0402
3762	3198 031 03390	33Ω 1% 0402
3762	3198 031 06890	68Ω 5% 0402
3763	3198 031 03390	33Ω 1% 0402
3763	3198 031 06890	68Ω 5% 0402
3764	3198 031 03390	33Ω 1% 0402
3764	3198 031 06890	68Ω 5% 0402
3766	4822 117 13548	1kΩ 5% 0402
3767	3198 031 03390	33Ω 1% 0402
3767	3198 031 06890	68Ω 5% 0402
3768	3198 031 03390	33Ω 1% 0402
3768	3198 031 06890	68Ω 5% 0402
3769	3198 031 03390	33Ω 1% 0402
3769	3198 031 06890	68Ω 5% 0402
3770	3198 031 03390	33Ω 1% 0402
3770	3198 031 06890	68Ω 5% 0402
3771	3198 031 07590	75Ω 5% 0402
3772	3198 031 07590	75Ω 5% 0402
3773	3198 031 07590	75Ω 5% 0402
3774	3198 031 03390	33Ω 1% 0402
3774	3198 031 06890	68Ω 5% 0402
3775	3198 031 03390	33Ω 1% 0402
3775	3198 031 06890	68Ω 5% 0402
3776	3198 031 07590	75Ω 5% 0402
3777	3198 031 03390	33Ω 1% 0402
3777	3198 031 06890	68Ω 5% 0402
3778	3198 031 04720	4.7kΩ 5% 0402
3779	3198 031 03390	33Ω 1% 0402
3779	3198 031 06890	68Ω 5% 0402
3780	3198 031 03390	33Ω 1% 0402
3780	3198 031 06890	68Ω 5% 0402
3781	3198 031 03390	33Ω 1% 0402
3781	3198 031 06890	68Ω 5% 0402
3782	4822 117 13548	1kΩ 5% 0402
3784	3198 031 03390	33Ω 1% 0402
3784	3198 031 06890	68Ω 5% 0402
3792	3198 031 01510	150Ω 5% 0.01W 0402
3793	4822 117 13602	2.2kΩ 5% 0.01W 0402
3794	3198 031 07590	75Ω 5% 0402
3795	3198 031 01510	150Ω 5% 0.01W 0402
3797	3198 031 04720	4.7kΩ 5% 0402
3800	3198 031 07590	75Ω 5% 0402
3801	3198 031 01510	150Ω 5% 0.01W 0402
3802	3198 031 01510	150Ω 5% 0.01W 0402
3803	3198 031 03390	33Ω 1% 0402
3803	3198 031 06890	68Ω 5% 0402
3804	3198 031 03390	33Ω 1% 0402
3804	3198 031 06890	68Ω 5% 0402
3805	4822 117 13545	100Ω 1% 0402
3811	3198 031 07590	75Ω 5% 0402
3812	3198 031 07590	75Ω 5% 0402
3814	3198 031 07590	75Ω 5% 0402
3815	3198 031 07590	75Ω 5% 0402
3817	3198 031 07590	75Ω 5% 0402
3818	3198 031 07590	75Ω 5% 0402
3820	3198 031 04720	4.7kΩ 5% 0402
3821	3198 031 03390	33Ω 1% 0402
3823	3198 031 06890	68Ω 5% 0402
3826	4822 117 13545	100Ω 1% 0402
3827	4822 117 13545	100Ω 1% 0402
3828	4822 117 13605	Jumper 0402
3829	4822 117 13545	100Ω 1% 0402
3830	3198 031 06890	68Ω 5% 0402
3831	3198 031 06890	68Ω 5% 0402
3832	3198 031 06890	68Ω 5% 0402
3833	3198 031 06890	68Ω 5% 0402
3834	3198 031 06890	68Ω 5% 0402
3835	3198 031 06890	68Ω 5% 0402
3836	3198 031 06890	68Ω 5% 0402
3837	3198 031 06890	68Ω 5% 0402
3838	3198 031 06890	68Ω 5% 0402
3839	3198 031 06890	68Ω 5% 0402
3840	3198 031 06890	68Ω 5% 0402
3841	3198 031 06890	68Ω 5% 0402
3842	3198 031 06890	68Ω 5% 0402
3843	3198 031 06890	68Ω 5% 0402
3844	3198 031 06890	68Ω 5% 0402
3845	3198 031 06890	68Ω 5% 0402
3846	3198 031 04720	4.7kΩ 5% 0402
3850	2322 705 87829	82Ω 5% 0402
3853	3198 031 04730	47Ω 5% 0402
3855	3198 031 04720	4.7kΩ 5% 0402
3856	3198 031 01090	10Ω 5% 0.01W 0402
3857	3198 031 01090	10Ω 5% 0.01W 0402
3858	3198 031 01090	10Ω 5% 0.01W 0402
3859	3198 031 01090	10Ω 5% 0.01W 0402
3860	3198 031 01090	10Ω 5% 0.01W 0402
3861	3198 031 01090	10Ω 5% 0.01W 0402
3864	4822 117 13545	100Ω 1% 0402
3865	4822 117 13545	100Ω 1% 0402
3867	4822 117 13545	100Ω 1% 0402
3868	4822 117 13545	100Ω 1% 0402
3869	4822 117 13545	100Ω 1% 0402
3870	4822 117 13545	100Ω 1% 0402
3871	4822 117 13545	100Ω 1% 0402
3872	4822 117 13545	100Ω 1% 0402
3873	4822 117 13545	100Ω 1% 0402
3875	4822 117 13545	100Ω 1% 0402
3880	3198 031 04730	47Ω 5% 0402
3881	3198 031 04730	47Ω 5% 0402
3882	3198 031 04730	47Ω 5% 0402
3883	3198 031 04730	47Ω 5% 0402
3884	3198 031 04730	47Ω 5% 0402
3885	4822 117 13548	1kΩ 5% 0402
3886	4822 117 13548	1kΩ 5% 0402
3887	4822 117 13548	1kΩ 5% 0402
3888	4822 117 13548	1kΩ 5% 0402
3889	4822 117 13548	1kΩ 5% 0402
3890	4822 117 13548	1kΩ 5% 0402
3891	4822 117 13548	1kΩ 5% 0402
3894	3198 031 01510	150Ω 5% 0.01W 0402
3896	4822 117 13605	Jumper 0402
3900	3198 031 06890	68Ω 5% 0402
3901	3198 031 06890	68Ω 5% 0402
3902	3198 031 06890	68Ω 5% 0402
3903	4822 117 11297	100kΩ 5% 0.1W
3905	3198 031 04720	4.7kΩ 5% 0402
3909	4822 117 13545	100Ω 1% 0402
3911	2350 033 11689	4x 68Ω 5% Netw.
3912	2350 033 11689	4x 68Ω 5% Netw.
3913	2350 033 11229	4x 22Ω 5% Netw.
3914	2350 033 11229	4x 22Ω 5% Netw.
3915	2350 033 11229	4x 22Ω 5% Netw.
3916	2350 033 11229	4x 22Ω 5% Netw.
3917	2350 033 11229	4x 22Ω 5% Netw.
3918	3198 031 06890	68Ω 5% 0402
3919	3198 031 06890	68Ω 5% 0402
3921	3198 031 06890	68Ω 5% 0402
3A00	4822 117 13601	22kΩ 5% 0402
3A01	4822 117 13606	10kΩ 5% 0.01W 0402
3A02	3198 031 04730	47Ω 5% 0402
3A03▲	4822 117 13568	6.8Ω 5% 1206
3A04	4822 117 13601	22kΩ 5% 0402
3A05	4822 117 13601	22kΩ 5% 0402
3A06	4822 117 11297	100kΩ 5% 0.1W
3A07	4822 117 11297	100kΩ 5% 0.1W
3A09	4822 117 13601	22kΩ 5% 0402
3A11	4822 117 11297	100kΩ 5% 0.1W
3A12	3198 031 04730	47Ω 5% 0402
3A13	3198 031 04730	47Ω 5% 0402
3A14	3198 031 04730	47Ω 5% 0402
3A15	4822 117 11297	100kΩ 5% 0.1W
3A16	4822 117 13545	100Ω 1% 0402
3A17	4822 117 13545	100Ω 1% 0402
3A18	3198 031 06830	68kΩ 5% 0.01W 0402
3A19	4822 117 13545	100Ω 1% 0402
3A20	4822 117 11297	100kΩ 5% 0.1W
3A21	3198 031 02730	27kΩ 5% 0402
3A21	3198 031 06830	68kΩ 5% 0.01W 0402
3A22	4822 117 11297	100kΩ 5% 0.1W
3A23	3198 031 06830	68kΩ 5% 0.01W 0402
3A24	3198 031 06810	680Ω 5% 0.01W 0402
3A24	4822 117 13545	100Ω 1% 0402
3A26	3198 031 06830	68kΩ 5% 0.01W 0402
3A27	3198 031 06820	6.8kΩ 5% 0.01W 0402
3A28	3198 031 06820	6.8kΩ 5% 0.01W 0402
3A40	3198 031 01830	18kΩ 5% 0.01W 0402
3A40	3198 031 04730	47Ω 5% 0402
3A45	3198 031 04730	47Ω 5% 0402
3A46	3198 031 01530	15kΩ 5% 0.01W 0402
3A46	3198 031 04720	4.7kΩ 5% 0402
3A47	3198 031 04730	47Ω 5% 0402
3A48	4822 117 11297	100kΩ 5% 0.1W
3A49	3198 031 01830	18kΩ 5% 0.01W 0402
3A49	3198 031 04730	47Ω 5% 0402
3A51	3198 031 01530	15kΩ 5% 0.01W 0402
3A51	3198 031 04720	4.7kΩ 5% 0402
3A52	3198 031 03930	39kΩ 5% 0402
3A52	3198 031 05630	56kΩ 5% 0402
3A53	3198 031 03930	39kΩ 5% 0402
3A53	3198 031 05630	56kΩ 5% 0402
3A55	4822 117 13597	330Ω 5% 0402 0.01W
3A60	4822 117 11297	100kΩ 5% 0.1W
3A61	4822 117 13597	330Ω 5% 0402 0.01W
3A62	4822 117 11297	100kΩ 5% 0.1W
3A63	4822 117 13601	22kΩ 5% 0402
3A64	3198 031 04730	47Ω 5% 0402
3A64	4822 117 13597	330Ω 5% 0402 0.01W
3A65	3198 031 01050	1MΩ 5% 0402
3A65	4822 117 11297	100kΩ 5% 0.1W
3A66	4822 117 11297	100kΩ 5% 0.1W
3A67	4822 117 13543	470Ω 5% 0402
3C00	4822 117 13602	2.2kΩ 5% 0.01W 0402
3C01	3198 031 01090	10Ω 5% 0.01W 0402
3C03	4822 117 13606	10kΩ 5% 0.01W 0402
3C04	4822 117 13606	10kΩ 5% 0.01W 0402
3C05	4822 117 13543	470Ω 5% 0402
3C08	4822 051 30103	10kΩ 5% 0.062W
3C10	4822 117 13545	100Ω 1% 0402
3C11	4822 117 13545	100Ω 1% 0402
3C12	3198 031 06890	68Ω 5% 0402
3E00	4822 117 13606	10kΩ 5% 0.01W 0402
3E01	4822 117 13548	1kΩ 5% 0402
3E02	4822 117 13548	1kΩ 5% 0402
3E03	4822 117 13548	1kΩ 5% 0402
3E04	4822 117 13548	1kΩ 5% 0402
3E05	3198 031 01520	1.2kΩ 5% 0.01W 0402
3E06	4822 117 13545	100Ω 1% 0402
3E07	4822 117 13545	100Ω 1% 0402
3E08	4822 117 13545	100Ω 1% 0402
3E11	4822 117 13543	470Ω 5% 0402
3E12	4822 117 13543	470Ω 5% 0402
3E14	4822 117 13548	1kΩ 5% 0402
3E16	3198 031 02720	2.7kΩ 5% 0.01W 0402
3E18	4822 117 13545	100Ω 1% 0402
3E19	4822 117 13545	100Ω 1% 0402
3E37	4822 117 13545	100Ω 1% 0402
3E50	4822 117 13606	10kΩ 5% 0.01W 0402
3E51	4822 117 13606	10kΩ 5% 0.01W 0402
3E52	4822 117 13606	10kΩ 5% 0.01W 0402
3E53	4822 117 13606	10kΩ 5% 0.01W 0402
3E54	4822 117 13546	47Ω 5% 0402
3E55	4822 117 13606	10kΩ 5% 0.01W 0402
3E56	4822 117 13603	33kΩ 5% 0402
3E57	4822 117 11297	100kΩ 5% 0.1W
3E58	4822 117 13546	47Ω 5% 0402
3E59	4822 117 13606	10kΩ 5% 0.01W 0402
3E61	4822 117 13546	47Ω 5% 0402
3E62	4822 117 13548	1kΩ 5% 0402
3E63	4822 117 13606	10kΩ 5% 0.01W 0402
3E64	4822 117 13606	10kΩ 5% 0.01W 0402
3E69	3198 031 04720	4.7kΩ 5% 0402
3E70	3198 031 04720	4.7kΩ 5% 0402
3E73	4822 117 13606	10kΩ 5% 0.01W 0402
3E74	4822 117 13546	47Ω 5% 0402
3E77	4822 117 13546	47Ω 5% 0402
3E78	4822 117 13546	47Ω 5% 0402
3E79	4822 117 13546	47Ω 5% 0402
3E80	4822 117 13546	47Ω 5% 0402
3E81	4822 117 13546	47Ω 5% 0402

3E82	3198 031 01090	10Ω 5% 0.01W 0402
3E83	3198 031 01090	10Ω 5% 0.01W 0402
3E84	3198 031 01090	10Ω 5% 0.01W 0402
3E85	3198 031 01090	10Ω 5% 0.01W 0402
3E86	3198 031 01090	10Ω 5% 0.01W 0402
3E88	4822 117 13546	47Ω 5% 0402
3E89	4822 117 13546	47Ω 5% 0402
3E90	3198 031 06890	68Ω 5% 0402
3E91	3198 031 03390	33Ω 1% 0402
3I07	4822 117 13606	10kΩ 5% 0.01W 0402
3I28	4822 051 30101	100Ω 5% 0.062W
3I32	4822 117 13548	1kΩ 5% 0402
3I33	4822 051 30101	100Ω 5% 0.062W
3I34	4822 117 13606	10kΩ 5% 0.01W 0402
3I36	4822 117 13601	22kΩ 5% 0402
3I37	4822 117 13601	22kΩ 5% 0402
3I38	4822 117 13601	22kΩ 5% 0402
3I39	3198 031 04720	4.7kΩ 5% 0402
3I40	4822 051 30101	100Ω 5% 0.062W
3I41	4822 117 13548	1kΩ 5% 0402
3I42	4822 117 13548	1kΩ 5% 0402
3I42	4822 117 13602	2.2kΩ 5% 0.01W 0402
3I44	4822 117 13606	10kΩ 5% 0.01W 0402
3I45	3198 031 04730	47Ω 5% 0402
3I46	4822 117 13545	100Ω 1% 0402
3I49	4822 117 13545	100Ω 1% 0402
3I54	4822 051 30101	100Ω 5% 0.062W
3I55	4822 051 30759	75Ω 5% 0.062W
3I56	4822 051 30101	100Ω 5% 0.062W
3I57	4822 051 30759	75Ω 5% 0.062W
3I58	4822 051 30101	100Ω 5% 0.062W
3I59	4822 051 30759	75Ω 5% 0.062W
3I61	4822 051 30101	100Ω 5% 0.062W
3I62	4822 051 30101	100Ω 5% 0.062W
3I69	4822 051 30271	270Ω 5% 0.062W
3I70	4822 051 30101	100Ω 5% 0.062W
3I71	4822 051 30271	270Ω 5% 0.062W
3I72	4822 051 30101	100Ω 5% 0.062W
3I73	4822 051 30101	100Ω 5% 0.062W
3I74	4822 051 30759	75Ω 5% 0.062W
3I76	4822 051 30101	100Ω 5% 0.062W
3I77	4822 051 30759	75Ω 5% 0.062W
3I78	4822 051 30759	75Ω 5% 0.062W
3I79	4822 051 30101	100Ω 5% 0.062W
3I80	4822 051 30101	100Ω 5% 0.062W
3I83	4822 051 30101	100Ω 5% 0.062W
3I84	4822 051 30759	75Ω 5% 0.062W
3I89	4822 051 30271	270Ω 5% 0.062W
3I90	4822 051 30101	100Ω 5% 0.062W
3I91	4822 051 30271	270Ω 5% 0.062W
3I92	4822 051 30101	100Ω 5% 0.062W
3I98	4822 117 11297	100kΩ 5% 0.1W
3I98	4822 117 13605	Jumper 0402
3I99	4822 051 30271	270Ω 5% 0.062W
3IA0	4822 051 30101	100Ω 5% 0.062W
3IA1	4822 117 11297	100kΩ 5% 0.1W
3IA2	4822 117 13545	100Ω 1% 0402
3IA3	4822 117 13601	22kΩ 5% 0402
3IA4	4822 117 13548	1kΩ 5% 0402
3IA5	4822 117 13548	1kΩ 5% 0402
3IA6	4822 117 13548	1kΩ 5% 0402
3IA7	4822 117 13548	1kΩ 5% 0402
3IA8	4822 117 13548	1kΩ 5% 0402
3IAA	8204 000 77491	VDR 90V 1mA 0402
3IAB	8204 000 77491	VDR 90V 1mA 0402
3IAC	8204 000 77491	VDR 90V 1mA 0402
3IAD	8204 000 77491	VDR 90V 1mA 0402
3IAE	8204 000 77491	VDR 90V 1mA 0402
3IAF	8204 000 77491	VDR 90V 1mA 0402
3IAG	8204 000 77491	VDR 90V 1mA 0402
3IAH	8204 000 77491	VDR 90V 1mA 0402
3IB1	4822 117 13606	10kΩ 5% 0.01W 0402
3IB2	4822 051 30101	100Ω 5% 0.062W
3IB3	4822 117 13606	10kΩ 5% 0.01W 0402
3IB4	4822 117 13601	22kΩ 5% 0402
3IB5	4822 117 13601	22kΩ 5% 0402
3IB6	4822 051 30101	100Ω 5% 0.062W
3IB6	4822 117 13548	1kΩ 5% 0402
3IB7	3198 031 03920	3.9kΩ 5% 0402
3IB7	4822 117 13597	330Ω 5% 0402 0.01W
3IBA	4822 117 13545	100Ω 1% 0402
3IBB	4822 117 13545	100Ω 1% 0402
3IBC	4822 117 13545	100Ω 1% 0402
3IBD	4822 117 13545	100Ω 1% 0402
3IC0	3198 031 04720	4.7kΩ 5% 0402
3IC0	4822 117 13548	1kΩ 5% 0402
3IC1▲	4822 117 13574	1.5Ω 5% 1206
3IC2	4822 117 13601	22kΩ 5% 0402
3IC3	4822 117 13601	22kΩ 5% 0402
3IC4	4822 051 30101	100Ω 5% 0.062W
3IC5	3198 031 02710	270Ω 5% 0.1W 0402
3IC5	4822 117 13596	220Ω 5% 0.01W 0402
3IC6	4822 051 30101	100Ω 5% 0.062W
3IC7	3198 031 03930	39kΩ 5% 0402
3IC7	4822 117 13596	220Ω 5% 0.01W 0402
3IC8	3198 031 01220	1.2kΩ 5% 0.01W 0402
3IC8	4822 117 13548	1kΩ 5% 0402
3IC9	4822 117 13548	1kΩ 5% 0402
3IC9	4822 117 13601	22kΩ 5% 0402
3ID0	3198 031 04720	4.7kΩ 5% 0402
3ID1	3198 031 01540	150kΩ 5% 0402
3ID1	4822 117 11297	100kΩ 5% 0.1W
3ID4	3198 031 01230	12kΩ 5% 0402
3ID5	3198 031 01090	10Ω 5% 0.01W 0402
3ID7	3198 031 05610	560Ω 5% 0.01W 0402
3ID7	4822 117 11297	100kΩ 5% 0.1W
3ID8	3198 031 05610	560Ω 5% 0.01W 0402
3ID8	4822 117 11297	100kΩ 5% 0.1W
3ID9	3198 031 01520	1.2kΩ 5% 0.01W 0402
3ID9	4822 117 13548	1kΩ 5% 0402
3IDA▲	5322 117 11726	10Ω 5%
3IDB	5322 117 11726	10Ω 5%
3IE1▲	4822 117 13574	1.5Ω 5% 1206
3IE2	4822 051 30101	100Ω 5% 0.062W
3IE3	4822 051 30101	100Ω 5% 0.062W
3IE4	3198 031 01220	1.2kΩ 5% 0.01W 0402
3IE4	4822 117 13548	1kΩ 5% 0402
3IE5	4822 117 11297	100kΩ 5% 0.1W
3IE6	3198 031 03930	39kΩ 5% 0402
3IE7	3198 031 01090	10Ω 5% 0.01W 0402
3IE8	3198 031 01520	1.2kΩ 5% 0.01W 0402
3IE8	4822 117 13548	1kΩ 5% 0402
3IE9	4822 117 13601	22kΩ 5% 0402
3IEF	4822 117 13602	2.2kΩ 5% 0.01W 0402
3IEG	3198 031 01220	1.2kΩ 5% 0.01W 0402
3IEH	3198 031 04720	4.7kΩ 5% 0402
3IEI	3198 031 04720	4.7kΩ 5% 0402
3IEJ	3198 031 03390	33Ω 1% 0402
3IEL	3198 031 04720	4.7kΩ 5% 0402
3IEM	3198 031 04720	4.7kΩ 5% 0402
3IEN	4822 117 13545	100Ω 1% 0402
3IEP	4822 117 13545	100Ω 1% 0402
3IF5	4822 117 13601	22kΩ 5% 0402
3IF6	4822 051 30101	100Ω 5% 0.062W
3IF7	4822 051 30101	100Ω 5% 0.062W
3IG0	3198 031 05610	560Ω 5% 0.01W 0402
3IG0	4822 117 13548	1kΩ 5% 0402
3IG1	3198 031 01090	10Ω 5% 0.01W 0402
3IG2	4822 117 13548	1kΩ 5% 0402
3IG3	3198 031 05610	560Ω 5% 0.01W 0402
3IG3	4822 117 13548	1kΩ 5% 0402
3IG4	3198 031 01090	10Ω 5% 0.01W 0402
3IG5	3198 031 01090	10Ω 5% 0.01W 0402
3IG6	3198 031 05610	560Ω 5% 0.01W 0402
3IG6	4822 117 13548	1kΩ 5% 0402
3IG7	3198 031 01090	10Ω 5% 0.01W 0402
3IG8	3198 031 01090	10Ω 5% 0.01W 0402
3IGE	4822 117 13606	10kΩ 5% 0.01W 0402
3IGF	3198 031 04730	47Ω 5% 0402
3IH1	3198 031 04730	47Ω 5% 0402
3IH1	4822 117 11297	100kΩ 5% 0.1W
3IH2	3198 031 04730	47Ω 5% 0402
3IH3	3198 031 03920	3.9kΩ 5% 0402
3IH5	4822 117 13545	100Ω 1% 0402
3IH6	4822 117 13596	220Ω 5% 0.01W 0402
3IH7	3198 031 01220	1.2kΩ 5% 0.01W 0402
3IH7	3198 031 01520	1.2kΩ 5% 0.01W 0402
3IH8	3198 031 04730	47Ω 5% 0402
3IHA	4822 117 13545	100Ω 1% 0402
3IHB	4822 117 13545	100Ω 1% 0402
3IHC	4822 117 13545	100Ω 1% 0402
3IHD	4822 117 13545	100Ω 1% 0402
3IHE	4822 117 13545	100Ω 1% 0402
3II3	3198 031 04730	47Ω 5% 0402
3II5	4822 117 13606	10kΩ 5% 0.01W 0402
3II6	4822 117 13601	22kΩ 5% 0402
3II7	4822 117 13601	22kΩ 5% 0402
3II8	4822 117 13548	1kΩ 5% 0402
3II9	4822 117 13548	1kΩ 5% 0402
3IJ0	4822 117 13545	100Ω 1% 0402
3IJ1	4822 117 13545	100Ω 1% 0402
3IJ9	4822 117 13548	1kΩ 5% 0402
3IK0	4822 117 13548	1kΩ 5% 0402
3IK2	4822 117 13601	22kΩ 5% 0402
3IK3	4822 117 13601	22kΩ 5% 0402
3IK6	4822 117 13602	2.2kΩ 5% 0.01W 0402
3IK7▲	4822 117 11152	4.7Ω 5%
3IL0	4822 117 11297	100kΩ 5% 0.1W
3IL1	3198 031 01220	1.2kΩ 5% 0.01W 0402
3IL2	4822 117 13548	1kΩ 5% 0402
3IL3	3198 031 01090	10Ω 5% 0.01W 0402
3IL4	3198 031 03930	39kΩ 5% 0402
3IL5	3198 031 02710	270Ω 5% 0.1W 0402
3IL6	4822 117 13545	100Ω 1% 0402
3IL7	4822 117 11297	100kΩ 5% 0.1W
3IL8	4822 117 13548	1kΩ 5% 0402
3IL9	4822 117 13548	1kΩ 5% 0402
3IM0	3198 031 01090	10Ω 5% 0.01W 0402
3IM1	3198 031 03930	39kΩ 5% 0402
3IM2	3198 031 05610	560Ω 5% 0.01W 0402
3IM3	3198 031 05610	560Ω 5% 0.01W 0402
3IM4	3198 031 01520	1.2kΩ 5% 0.01W 0402
3IM5	4822 117 11297	100kΩ 5% 0.1W
3IM6	4822 117 13548	1kΩ 5% 0402
3IM7	4822 117 13545	100Ω 1% 0402
3IM8	4822 117 13596	220Ω 5% 0.01W 0402
3IM9	3198 031 03930	39kΩ 5% 0402
3IMA	4822 117 11297	100kΩ 5% 0.1W
3IMB	3198 031 05630	56kΩ 5% 0402
3IMC	4822 117 13548	1kΩ 5% 0402
3IMD	4822 117 11297	100kΩ 5% 0.1W
3IME	3198 031 05630	56kΩ 5% 0402
3IMF	4822 117 13548	1kΩ 5% 0402
3IMG	4822 117 11297	100kΩ 5% 0.1W
3IMH	3198 031 05630	56kΩ 5% 0402
3IML	4822 117 11297	100kΩ 5% 0.1W
3IMM	3198 031 05630	56kΩ 5% 0402
3IMN	4822 117 13548	1kΩ 5% 0402
3IMP	4822 117 11297	100kΩ 5% 0.1W
3IMR	3198 031 05630	56kΩ 5% 0402
3IMS	4822 117 13548	1kΩ 5% 0402
3IMT	4822 117 11297	100kΩ 5% 0.1W
3IMV	3198 031 05630	56kΩ 5% 0402
3IMW	4822 117 13548	1kΩ 5% 0402
3IN0	3198 031 01090	10Ω 5% 0.01W 0402
3IN4▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3IN5	4822 117 13601	22kΩ 5% 0402
3IN6	4822 117 13601	22kΩ 5% 0402
3IN7	3198 031 03930	39kΩ 5% 0402
3IN8	3198 031 01090	10Ω 5% 0.01W 0402
3IN9	4822 117 11297	100kΩ 5% 0.1W
3INK	4822 117 13548	1kΩ 5% 0402
3IO5	4822 117 13606	10kΩ 5% 0.01W 0402
3IO6	4822 117 13606	10kΩ 5% 0.01W 0402
3IQ5	3198 031 04730	47Ω 5% 0402
3IQ6	4822 117 13545	100Ω 1% 0402
3IQ7	4822 117 13545	100Ω 1% 0402
3IR0	3198 031 08210	820Ω 5% 0,5W
3IR1	3198 031 01210	120Ω 5% 0.01W 0402
3IR1	3198 031 01510	150Ω 5% 0.01W 0402
3IR2	3198 031 04720	4.7kΩ 5% 0402
3IR3	3198 031 04720	4.7kΩ 5% 0402
3IR5	3198 031 03390	33Ω 1% 0402
3IR6	3198 031 03390	33Ω 1% 0402
3IR7	2322 706 73901	390Ω 1% 0402
3IR9	2322 706 71201	120Ω 1% 0402
3IS0	2322 706 71201	120Ω 1% 0402
3IS1	2322 706 71201	120Ω 1% 0402
3IS2	4822 051 30101	100Ω 5% 0.062W
3IS5	2322 706 71201	120Ω 1% 0402
3IS7	4822 117 13543	470Ω 5% 0402
3IS8	4822 117 13545	100Ω 1% 0402
3IS9	4822 117 13545	100Ω 1% 0402
3IT0	3198 031 04730	47Ω 5% 0402
3IT1	3198 031 04730	47Ω 5% 0402
3IT4	3198 031 04730	47Ω 5% 0402
3IT5	2322 706 71201	120Ω 1% 0402
3IT6	2322 706 71201	120Ω 1% 0402
3IT7	4822 117 13548	1kΩ 5% 0402
3IT8	4822 117 13548	1kΩ 5% 0402
3IU0▲	4822 117 11748	Fuse 2.2Ω 5% 1206
3IU4	4822 117 13543	470Ω 5% 0402
3IV4	4822 117 13548	1kΩ 5% 0402
3IV5	4822 117 13548	1kΩ 5% 0402
3IV6	4822 117 13548	1kΩ 5% 0402
3IW6	3198 031 04720	4.7kΩ 5% 0402
3IY1	3198 031 01820	1.8kΩ 5% 0.01W 0402
3IY2	4822 117 11297	100kΩ 5% 0.1W
3IY3	3198 031 06810	680Ω 5% 0.01W 0402
3IY4	3198 031 05610	560Ω 5% 0.01W 0402
3IY5	3198 031 03930	39kΩ 5% 0402
3IY6	3198 031 02710	270Ω 5% 0.1W 0402
3IY7	4822 051 30101	100Ω 5% 0.062W
3L03	4822 117 13545	100Ω 1% 0402
3L04	4822 117 13545	100Ω 1% 0402
3L05	4822 117 13545	100Ω 1% 0402
3L06	4822 117 13545	100Ω 1% 0402
3L08	3198 031 02720	2.7kΩ 5% 0.01W 0402
3L11	4822 117 13545	100Ω 1% 0402
3L12	4822 117 13543	470Ω 5% 0402
3L19	3198 031 06810	680Ω 5% 0.01W 0402
3L20	3198 031 06810	680Ω 5% 0.01W 0402
3L21	3198 031 06810	680Ω 5% 0.01W 0402
3L28	4822 117 13543	470Ω 5% 0402
3L29	3198 031 01510	150Ω 5% 0.01W 0402
3L30	3198 031 01510	150Ω 5% 0.01W 0402
3L31	3198 031 01510	150Ω 5% 0.01W 0402
3L32	4822 117 13543	470Ω 5% 0402
3L33	4822 117 13543	470Ω 5% 0402
3P00	4822 117 11748	Fuse 2.2Ω 5% 1206
3P01	4822 117 11748	Fuse 2.2Ω 5% 1206
3P02	4822 117 11151	1Ω 5%

3P03	3198 031 08220	8.2kΩ 5% 0.5W
3P04	3198 031 01830	18kΩ 5% 0.01W 0402
3P05	4822 117 13601	22kΩ 5% 0402
3P06	4822 117 13545	100Ω 1% 0402
3P11	4822 117 13597	330Ω 5% 0402 0.01W
3P21	4822 117 11297	100kΩ 5% 0.1W
3P22	4822 117 13545	100Ω 1% 0402
3P23	4822 117 13545	100Ω 1% 0402
3P24	3198 031 01530	15kΩ 5% 0.01W 0402
3P25	3198 031 03910	390Ω 1% 0402
3P26	4822 117 13548	1kΩ 5% 0402
3P27	3198 031 02710	270Ω 5% 0.1W 0402
3P28	3198 031 01520	1.2kΩ 5% 0.01W 0402
3P29	4822 117 11297	100kΩ 5% 0.1W
3P30	4822 117 13545	100Ω 1% 0402
3P31	4822 117 13543	470Ω 5% 0402
3P32	3198 031 03910	390Ω 1% 0402
3P33	4822 117 13548	1kΩ 5% 0402
3P34	4822 117 13546	47Ω 5% 0402
3P35	4822 117 13543	470Ω 5% 0402
3P36	4822 117 13548	1kΩ 5% 0402
3P37	3198 031 04720	4.7kΩ 5% 0402
3P38	4822 117 13548	1kΩ 5% 0402
3P39	3198 031 04720	4.7kΩ 5% 0402
3P44	4822 117 13545	100Ω 1% 0402
3P48	4822 117 13545	100Ω 1% 0402
3P49	3198 031 03910	390Ω 1% 0402
3P50	2322 705 70106	10MΩ 5% 0402
3P50	2322 705 87106	10MΩ 5% 0402
3P51	2322 705 70106	10MΩ 5% 0402
3P51	2322 705 87106	10MΩ 5% 0402
3P52	4822 117 13606	10kΩ 5% 0.01W 0402
3P53	4822 117 13543	470Ω 5% 0402
3P54	3198 031 06820	6.8kΩ 5% 0.01W 0402
3P56	3198 031 01090	10Ω 5% 0.01W 0402
3P57	3198 031 06810	680Ω 5% 0.01W 0402
3P58	4822 117 13545	100Ω 1% 0402
3P59	4822 117 13545	100Ω 1% 0402
3P60	3198 031 06810	680Ω 5% 0.01W 0402
3P61	3198 031 02730	27kΩ 5% 0402
3P62	3198 031 01090	10Ω 5% 0.01W 0402
3P63	3198 031 06810	680Ω 5% 0.01W 0402
3P64	3198 031 04720	4.7kΩ 5% 0402
3P65	4822 117 13545	100Ω 1% 0402
3P66	4822 117 13545	100Ω 1% 0402
3P67	3198 031 04720	4.7kΩ 5% 0402
3P68	3198 031 04720	4.7kΩ 5% 0402
3P69	3198 031 04720	4.7kΩ 5% 0402
3P70	3198 031 04720	4.7kΩ 5% 0402
3P72	3198 031 04720	4.7kΩ 5% 0402
3P74	4822 117 11748	Fuse 2.2Ω 5% 1206
3P75	4822 117 13545	100Ω 1% 0402
3P76	3198 031 01090	10Ω 5% 0.01W 0402
3P79	4822 117 13545	100Ω 1% 0402
3P80	3198 031 06820	6.8kΩ 5% 0.01W 0402
3P81	4822 117 13545	100Ω 1% 0402
3P82	3198 031 04740	470kΩ 5% 0402
3P85	3198 031 04720	4.7kΩ 5% 0402
3P86	4822 117 13606	10kΩ 5% 0.01W 0402
3P87	4822 117 13606	10kΩ 5% 0.01W 0402
3P88	2322 750 63908	3.9Ω 5% Fuse 1206
3P93	3198 031 06810	680Ω 5% 0.01W 0402
3P94	3198 031 04720	4.7kΩ 5% 0402
3P95	3198 031 04720	4.7kΩ 5% 0402
3P96	3198 031 04720	4.7kΩ 5% 0402
3P97	3198 031 04720	4.7kΩ 5% 0402
3P98	3198 031 01090	10Ω 5% 0.01W 0402
3P99	3198 031 06810	680Ω 5% 0.01W 0402
3PA0	4822 117 13596	220Ω 5% 0.01W 0402
3PA1	4822 117 13545	100Ω 1% 0402
3PA3	4822 117 13545	100Ω 1% 0402
3PA7	4822 117 13545	100Ω 1% 0402
3PA8	4822 117 13596	220Ω 5% 0.01W 0402
3PA9	3198 031 03930	39kΩ 5% 0402
3PB2	3198 031 01520	1.2kΩ 5% 0.01W 0402
3PB4	3198 031 01520	1.2kΩ 5% 0.01W 0402
3PB6	3198 031 01220	1.2kΩ 5% 0.01W 0402
3PB7	4822 117 13545	100Ω 1% 0402
3PB8	3198 031 01820	1.8kΩ 5% 0.01W 0402
3PB9	3198 031 03320	3.3kΩ 5% 0402
3PC0	3198 031 03320	3.3kΩ 5% 0402
3PC1	4822 117 13545	100Ω 1% 0402
3PC2	4822 117 13545	100Ω 1% 0402
3PC4	3198 031 06810	680Ω 5% 0.01W 0402
3PC5	3198 031 04720	4.7kΩ 5% 0402
3PC6	3198 031 03930	39kΩ 5% 0402
3PC7	4822 117 13596	220Ω 5% 0.01W 0402
3PC8	4822 117 13545	100Ω 1% 0402
3PD0	4822 117 13596	220Ω 5% 0.01W 0402
3PD2	4822 117 13545	100Ω 1% 0402
3PD3	3198 031 01820	1.8kΩ 5% 0.01W 0402
3PD5	3198 031 03320	3.3kΩ 5% 0402
3PD7	3198 031 01220	1.2kΩ 5% 0.01W 0402
3PD8	3198 031 03320	3.3kΩ 5% 0402
3PD9	3198 031 03320	3.3kΩ 5% 0402
3PE0	3198 031 01520	1.2kΩ 5% 0.01W 0402
3PE2	3198 031 01520	1.2kΩ 5% 0.01W 0402
3PE9	4822 117 13597	330Ω 5% 0402 0.01W
3PF0	3198 031 01210	120Ω 5% 0.01W 0402
3PF1	3198 031 01520	1.2kΩ 5% 0.01W 0402
3PF2	3198 031 02710	270Ω 5% 0.1W 0402
3PF3	3198 031 03320	3.3kΩ 5% 0402
3PF4	4822 117 13601	22kΩ 5% 0402
3PF5	4822 117 13548	1kΩ 5% 0402
3PF6	3198 031 05610	560Ω 5% 0.01W 0402
3PF7	4822 117 13543	470Ω 5% 0402
3PF7	4822 117 13545	100Ω 1% 0402
3PF8	3198 031 08210	820Ω 5% 0,5W
3PF9	3198 031 01210	120Ω 5% 0.01W 0402
3PG0	3198 031 05610	560Ω 5% 0.01W 0402
3PG1	3198 031 06890	68Ω 5% 0402
3PG2	3198 031 06810	680Ω 5% 0.01W 0402
3PG3	3198 031 06810	680Ω 5% 0.01W 0402
3PG4	3198 031 06810	680Ω 5% 0.01W 0402
3PG5	3198 031 06810	680Ω 5% 0.01W 0402
3PG6	3198 031 06810	680Ω 5% 0.01W 0402
3PG7	3198 031 04720	4.7kΩ 5% 0402
3PG8	4822 117 13548	1kΩ 5% 0402
3PH2	4822 117 13546	47Ω 5% 0402
3PH3	4822 117 13546	47Ω 5% 0402
3PH4	4822 117 13546	47Ω 5% 0402
3PH5	4822 117 13546	47Ω 5% 0402
3PH6	4822 117 13546	47Ω 5% 0402
3PH7	4822 117 13546	47Ω 5% 0402
3PH8	4822 117 13546	47Ω 5% 0402
3PH9	4822 117 13546	47Ω 5% 0402
3PI0	4822 117 13546	47Ω 5% 0402
3PJ0	3198 031 01090	10Ω 5% 0.01W 0402
3PJ1	3198 031 06810	680Ω 5% 0.01W 0402
3PJ2	4822 117 13597	330Ω 5% 0402 0.01W
3PJ3	3198 031 01210	120Ω 5% 0.01W 0402
3PJ4	3198 031 06810	680Ω 5% 0.01W 0402
3PJ5	3198 031 08210	820Ω 5% 0,5W
3PJ7	4822 117 13602	2.2kΩ 5% 0.01W 0402
3PJ8	3198 031 01820	1.8kΩ 5% 0.01W 0402
3PJ9	3198 031 04720	4.7kΩ 5% 0402
3U01	4822 051 30102	1kΩ 5% 0.062W
3U02	4822 117 13548	1kΩ 5% 0402
3U03	4822 117 13603	33kΩ 5% 0402
3U04	4822 051 20121	120Ω 5% 0.1W
3U05	4822 051 30102	1kΩ 5% 0.062W
3U05	4822 117 13548	1kΩ 5% 0402
3U06	4822 117 13543	470Ω 5% 0402
3U07	3198 031 02290	22Ω 5% 0.1W 0402
3U08	2322 706 71502	1.5kΩ 1% 0402
3U09	3198 031 05620	5.6kΩ 5% 0.01W 0402
3U10	3198 031 01210	120Ω 5% 0.01W 0402
3U10	4822 117 13596	220Ω 5% 0.01W 0402
3U11	4822 051 30121	120Ω 5% 0.062W
3U12	4822 117 13601	22kΩ 5% 0402
3U13	4822 117 13606	10kΩ 5% 0.01W 0402
3U14	4822 051 30102	1kΩ 5% 0.062W
3U15	2322 706 73302	3.3kΩ 1% 0402
3U16	3198 031 01210	120Ω 5% 0.01W 0402
3U17	3198 031 04780	4.7Ω 5% 0402
3U18	2322 704 61002	1kΩ 1%
3U18	2322 706 71002	1kΩ 1% 0402
3U19	3198 031 04720	4.7kΩ 5% 0402
3U20	2322 704 61002	1kΩ 1%
3U20	2322 706 71002	1kΩ 1% 0402
3U21	3198 031 04730	47Ω 5% 0402
3U22	3198 031 02710	270Ω 5% 0.1W 0402
3U23	3198 031 01090	10Ω 5% 0.01W 0402
3U24	4822 117 13601	22kΩ 5% 0402
3U25	3198 031 02240	220kΩ 5% 0.1W 0402
3U26	4822 117 13601	22kΩ 5% 0402
3U27	4822 117 13601	22kΩ 5% 0402
3U28	3198 031 04730	47Ω 5% 0402
3U29	4822 051 30109	10Ω 5% 0.062W
3U30	4822 051 20121	120Ω 5% 0.1W
3U31	4822 051 20121	120Ω 5% 0.1W
3U32	3198 031 01830	18kΩ 5% 0.01W 0402
3U33	4822 117 13606	10kΩ 5% 0.01W 0402
3U34	3198 031 04740	470kΩ 5% 0402
3U35	4822 117 13606	10kΩ 5% 0.01W 0402
3U36	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U37	4822 117 13601	22kΩ 5% 0402
3U38	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U39	4822 117 13601	22kΩ 5% 0402
3U40	3198 031 01540	150kΩ 5% 0402
3U41	4822 117 13548	1kΩ 5% 0402
3U42	4822 117 13606	10kΩ 5% 0.01W 0402
3U43	4822 117 13601	22kΩ 5% 0402
3U44	3198 031 01050	1MΩ 5% 0402
3U45	3198 031 01050	1MΩ 5% 0402
3U46	2322 706 74703	47kΩ 1% 0402
3U46	4822 117 12925	47kΩ 1% 0.063W 0603
3U51	4822 117 12139	22Ω 5% 0.062W
3U51	9965 000 23109	22Ω 5% 0603
3U52	4822 051 30102	1kΩ 5% 0.062W
3U53	3198 031 01830	18kΩ 5% 0.01W 0402
3U54	4822 117 13545	100Ω 1% 0402
3U55	4822 051 30102	1kΩ 5% 0.062W
3U56	3198 031 04720	4.7kΩ 5% 0402
3U57	4822 117 13606	10kΩ 5% 0.01W 0402
3U60	4822 117 13548	1kΩ 5% 0402
3U61	4822 117 13606	10kΩ 5% 0.01W 0402
3U62	4822 117 13548	1kΩ 5% 0402
3U63	4822 117 13602	2.2kΩ 5% 0.01W 0402
3U64	4822 117 13548	1kΩ 5% 0402
3U65	4822 117 13548	1kΩ 5% 0402
3U66	4822 117 13606	10kΩ 5% 0.01W 0402
3U67	4822 117 13545	100Ω 1% 0402
3U68	4822 117 13606	10kΩ 5% 0.01W 0402
3U69	4822 117 13548	1kΩ 5% 0402
3U70	4822 051 30102	1kΩ 5% 0.062W
3V01	3198 031 01810	180Ω 5% 0402
3V02	3198 031 01810	180Ω 5% 0402
3V17	3198 031 01810	180Ω 5% 0402
3V18	3198 031 03910	390Ω 1% 0402
3V19	3198 031 01810	180Ω 5% 0402
3V20	3198 031 01810	180Ω 5% 0402
3V21	2350 033 11339	4 x 33Ω 5%
3V21	2350 033 11689	4x 68Ω 5% Netw.
3V22	2350 033 11339	4 x 33Ω 5%
3V22	2350 033 11689	4x 68Ω 5% Netw.
3V23	2350 033 11339	4 x 33Ω 5%
3V23	2350 033 11689	4x 68Ω 5% Netw.
3V24	2350 033 11339	4 x 33Ω 5%
3V24	2350 033 11689	4x 68Ω 5% Netw.
3V25	3198 031 01810	180Ω 5% 0402
3V26	3198 031 01810	180Ω 5% 0402
3V27	3198 031 01810	180Ω 5% 0402
3V28	3198 031 01810	180Ω 5% 0402
3V29	3198 031 01810	180Ω 5% 0402
3V30	3198 031 01810	180Ω 5% 0402
3V31	3198 031 01810	180Ω 5% 0402
3V32	3198 031 01810	180Ω 5% 0402
3V33	3198 031 01810	180Ω 5% 0402
3V34	3198 031 01810	180Ω 5% 0402
3V35	4822 117 13545	100Ω 1% 0402
3V36	4822 117 13545	100Ω 1% 0402
3V37	4822 117 13545	100Ω 1% 0402
3V38	4822 117 13545	100Ω 1% 0402
3V39	3198 031 04720	4.7kΩ 5% 0402
3V40	4822 117 13545	100Ω 1% 0402
3V50	4822 117 13606	10kΩ 5% 0.01W 0402
3V51	4822 117 13606	10kΩ 5% 0.01W 0402
3V52	4822 117 13606	10kΩ 5% 0.01W 0402
3V53	4822 117 13606	10kΩ 5% 0.01W 0402
3V54	4822 117 13606	10kΩ 5% 0.01W 0402
3V55	4822 117 13606	10kΩ 5% 0.01W 0402
3V56	4822 117 13545	100Ω 1% 0402
3Y01	4822 117 13545	100Ω 1% 0402
3Y03	4822 117 13545	100Ω 1% 0402
3Y04	4822 117 13602	2.2kΩ 5% 0.01W 0402
3Y05	4822 117 13545	100Ω 1% 0402
3Y07	4822 117 13545	100Ω 1% 0402
3Y08	3198 031 03320	3.3kΩ 5% 0402
3Y08	4822 117 13545	100Ω 1% 0402
3Y09	4822 117 13545	100Ω 1% 0402
3Y10	4822 117 13545	100Ω 1% 0402
3Y11	4822 117 13545	100Ω 1% 0402
3Y12	4822 117 13545	100Ω 1% 0402
3Y14	3198 031 04720	4.7kΩ 5% 0402
3Y14	4822 117 13548	1kΩ 5% 0402
3Y15	4822 117 13548	1kΩ 5% 0402
3Y16	4822 117 13548	1kΩ 5% 0402
3Y17	4822 117 13545	100Ω 1% 0402
3Y18	4822 117 13545	100Ω 1% 0402
3Y19	4822 117 13545	100Ω 1% 0402
3Y20	3198 031 06890	68Ω 5% 0402
3Y20	4822 117 12521	68Ω 1% 0.1W
3Y21	3198 031 06890	68Ω 5% 0402
3Y22	3198 031 06890	68Ω 5% 0402
3Y23	3198 031 06890	68Ω 5% 0402
3Y24	4822 117 11297	100kΩ 5% 0.1W
3Y25	4822 117 13545	100Ω 1% 0402
3Y27	4822 117 13545	100Ω 1% 0402
3Y28	4822 117 13545	100Ω 1% 0402
3Y29	3198 031 05620	5.6kΩ 5% 0.01W 0402
3Y30	3198 031 01530	15kΩ 5% 0.01W 0402
3Y30	3198 031 05620	5.6kΩ 5% 0.01W 0402
3Y34	4822 117 13545	100Ω 1% 0402
3Y35	4822 117 13545	100Ω 1% 0402
3Y36	4822 117 13545	100Ω 1% 0402
3Y37	3198 031 04720	4.7kΩ 5% 0402
3Y38	4822 117 13602	2.2kΩ 5% 0.01W 0402
3Y39	4822 117 13606	10kΩ 5% 0.01W 0402
3Y40	4822 117 13545	100Ω 1% 0402
3Z26	4822 117 13548	1kΩ 5% 0402
3Z34	4822 117 13601	22kΩ 5% 0402

3Z50	4822 117 13545	100Ω 1% 0402
3Z51	4822 117 13545	100Ω 1% 0402
3Z52	4822 117 13545	100Ω 1% 0402
3Z54	4822 117 13548	1kΩ 5% 0402
9001	4822 117 13605	Jumper 0402
9002	4822 117 13605	Jumper 0402
9007	4822 117 13605	Jumper 0402
9010	4822 117 13605	Jumper 0402
9011⚠	4822 117 13605	Jumper 0402
9012	4822 117 13605	Jumper 0402
9013	4822 117 13605	Jumper 0402
9014	4822 051 30008	Jumper 0603
9020	4822 117 13605	Jumper 0402
9023	4822 117 13605	Jumper 0402
9024	4822 117 13605	Jumper 0402
9316	4822 117 13605	Jumper 0402
9322	4822 117 13605	Jumper 0402
9401	4822 117 13605	Jumper 0402
9403	4822 117 13605	Jumper 0402
9404	4822 117 13605	Jumper 0402
9407	4822 117 13605	Jumper 0402
9409	4822 117 13605	Jumper 0402
9410	4822 117 13605	Jumper 0402
9413	4822 117 13605	Jumper 0402
9414	4822 117 13605	Jumper 0402
9416	4822 117 13605	Jumper 0402
9417	4822 117 13605	Jumper 0402
9423	4822 117 13605	Jumper 0402
9424	4822 117 13605	Jumper 0402
9425	4822 117 13605	Jumper 0402
9426	4822 117 13605	Jumper 0402
9427	4822 117 13605	Jumper 0402
9428	4822 117 13605	Jumper 0402
9702	4822 117 13605	Jumper 0402
9704	4822 117 13605	Jumper 0402
9706	4822 117 13605	Jumper 0402
9707	4822 117 13605	Jumper 0402
9708	4822 117 13605	Jumper 0402
9709	4822 117 13605	Jumper 0402
9710	4822 117 13605	Jumper 0402
9713	4822 117 13605	Jumper 0402
9714	4822 117 13605	Jumper 0402
9715	4822 117 13605	Jumper 0402
9716	4822 117 13605	Jumper 0402
9717	4822 117 13605	Jumper 0402
9718	4822 117 13605	Jumper 0402
9720	4822 117 13605	Jumper 0402
9721	4822 117 13605	Jumper 0402
9722	4822 117 13605	Jumper 0402
9723	4822 117 13605	Jumper 0402
9724	4822 117 13605	Jumper 0402
9727	4822 117 13605	Jumper 0402
9728	4822 117 13605	Jumper 0402
9730	4822 117 13605	Jumper 0402
9732	4822 117 13605	Jumper 0402
9750	4822 117 13605	Jumper 0402
9751	4822 117 13605	Jumper 0402
9752	4822 117 13605	Jumper 0402
9753	4822 117 13605	Jumper 0402
9754	4822 117 13605	Jumper 0402
9755	4822 117 13605	Jumper 0402
9756	4822 117 13605	Jumper 0402
9757	4822 117 13605	Jumper 0402
9758	4822 117 13605	Jumper 0402
9760	4822 117 13605	Jumper 0402
9761	4822 117 13605	Jumper 0402
9762	4822 117 13605	Jumper 0402
9763	4822 117 13605	Jumper 0402
9765	4822 117 13605	Jumper 0402
9766	4822 117 13605	Jumper 0402
9772	4822 117 13605	Jumper 0402
9773	4822 117 13605	Jumper 0402
9774	4822 117 13605	Jumper 0402
9775	4822 117 13605	Jumper 0402
9800	4822 117 13605	Jumper 0402
9801	4822 117 13605	Jumper 0402
9802	4822 117 13605	Jumper 0402
9803	4822 117 13605	Jumper 0402
9804	4822 117 13605	Jumper 0402
9805	4822 117 13605	Jumper 0402
9806	4822 117 13605	Jumper 0402
9808	4822 117 13605	Jumper 0402
9809	4822 117 13605	Jumper 0402
9811	4822 117 13605	Jumper 0402
9812	4822 117 13605	Jumper 0402
9813	2350 033 11689	4x 68Ω 5% Netw.
9814	2350 033 11689	4x 68Ω 5% Netw.
9815	2350 033 11229	4x 22Ω 5% Netw.
9815	4822 117 13605	Jumper 0402
9816	2350 033 11229	4x 22Ω 5% Netw.
9816	4822 117 13605	Jumper 0402
9817	2350 033 11229	4x 22Ω 5% Netw.
9817	4822 117 13605	Jumper 0402
9818	4822 117 13605	Jumper 0402
9819	2350 033 11229	4x 22Ω 5% Netw.
9820	2350 033 11229	4x 22Ω 5% Netw.
9820	4822 117 13605	Jumper 0402
9821	3198 031 06890	68Ω 5% 0402
9821	4822 117 13605	Jumper 0402
9822	3198 031 06890	68Ω 5% 0402
9822	4822 117 13605	Jumper 0402
9823	3198 031 06890	68Ω 5% 0402
9824	3198 031 06890	68Ω 5% 0402
9825	3198 031 06890	68Ω 5% 0402
9825	4822 117 13605	Jumper 0402
9826	3198 031 06890	68Ω 5% 0402
9826	4822 117 13605	Jumper 0402
9827	3198 031 06890	68Ω 5% 0402
9827	4822 117 13605	Jumper 0402
9A00	4822 117 13605	Jumper 0402
9A01	4822 117 13605	Jumper 0402
9A02	4822 117 13605	Jumper 0402
9A03	4822 117 13605	Jumper 0402
9A04	4822 117 13605	Jumper 0402
9A05	4822 117 13605	Jumper 0402
9A06	4822 117 13605	Jumper 0402
9A07	4822 117 13605	Jumper 0402
9A10	4822 117 13605	Jumper 0402
9A11	4822 117 13605	Jumper 0402
9A12	4822 117 13605	Jumper 0402
9A13	4822 117 13605	Jumper 0402
9A14	4822 117 13605	Jumper 0402
9A15	4822 117 13605	Jumper 0402
9A16	4822 117 13605	Jumper 0402
9A17	4822 117 13605	Jumper 0402
9A24	4822 117 13605	Jumper 0402
9A65	4822 117 13605	Jumper 0402
9A75	4822 117 13605	Jumper 0402
9C02	4822 117 13605	Jumper 0402
9E60	4822 117 13605	Jumper 0402
9E62	4822 117 13605	Jumper 0402
9E65	4822 117 13605	Jumper 0402
9E66	4822 117 13605	Jumper 0402
9E67	4822 117 13605	Jumper 0402
9E68	4822 117 13605	Jumper 0402
9E69	4822 117 13605	Jumper 0402
9E70	4822 117 13605	Jumper 0402
9E71	4822 117 13605	Jumper 0402
9E72	4822 117 13605	Jumper 0402
9E73	4822 117 13605	Jumper 0402
9E74	4822 117 13605	Jumper 0402
9E76	4822 117 13605	Jumper 0402
9E77	4822 117 13605	Jumper 0402
9I00	4822 117 13605	Jumper 0402
9I01	4822 117 13605	Jumper 0402
9I02	4822 117 13605	Jumper 0402
9I03	4822 117 13605	Jumper 0402
9I15	4822 117 13605	Jumper 0402
9I24	4822 117 13605	Jumper 0402
9I43	4822 117 13605	Jumper 0402
9I48	4822 117 13605	Jumper 0402
9I51	4822 117 13605	Jumper 0402
9I55	4822 117 13605	Jumper 0402
9I56	4822 117 13605	Jumper 0402
9I57	4822 117 13605	Jumper 0402
9I58	4822 117 13605	Jumper 0402
9I68	4822 117 13605	Jumper 0402
9I69	4822 117 13605	Jumper 0402
9I70	4822 117 13605	Jumper 0402
9I73	4822 117 13605	Jumper 0402
9I74	4822 117 13605	Jumper 0402
9I75	4822 117 13605	Jumper 0402
9I80	4822 117 13605	Jumper 0402
9I82	4822 117 13605	Jumper 0402
9I86	4822 117 13605	Jumper 0402
9IA0	4822 117 13605	Jumper 0402
9IA1	2022 552 05679	1µF 10% 16V 0805
9IA3	2022 552 05679	1µF 10% 16V 0805
9IA5	4822 117 13605	Jumper 0402
9IB5	4822 117 13605	Jumper 0402
9IB6	4822 117 13605	Jumper 0402
9IB7	4822 117 13605	Jumper 0402
9ID0	4822 117 13605	Jumper 0402
9ID1	4822 117 13605	Jumper 0402
9ID3	4822 117 13605	Jumper 0402
9ID5	4822 117 13605	Jumper 0402
9ID8	4822 117 13605	Jumper 0402
9ID9	4822 117 13605	Jumper 0402
9IZZ	4822 117 13605	Jumper 0402
9P00	4822 117 13605	Jumper 0402
9P02	4822 117 13605	Jumper 0402
9P03	4822 117 13605	Jumper 0402
9P04	4822 117 13605	Jumper 0402
9P06	4822 117 13605	Jumper 0402
9P07	4822 117 13605	Jumper 0402
9P10	4822 117 13605	Jumper 0402
9P12	4822 117 13605	Jumper 0402
9P13	4822 117 13605	Jumper 0402
9P14	4822 117 13605	Jumper 0402
9P24	4822 117 13605	Jumper 0402
9P30	4822 117 13605	Jumper 0402
9P52	4822 117 13605	Jumper 0402
9P53	4822 117 13605	Jumper 0402
9P54	4822 117 13605	Jumper 0402
9P69	4822 117 13605	Jumper 0402
9P70	4822 117 13605	Jumper 0402
9P71	4822 117 13605	Jumper 0402
9P72	4822 117 13605	Jumper 0402
9P73	4822 117 13605	Jumper 0402
9P74	4822 117 13605	Jumper 0402
9P75	4822 117 13605	Jumper 0402
9PA2	4822 117 13605	Jumper 0402
9PA7	4822 117 13605	Jumper 0402
9PB1	4822 117 13605	Jumper 0402
9PB2	4822 117 13605	Jumper 0402
9PB4	4822 117 13605	Jumper 0402
9PB5	4822 117 13605	Jumper 0402
9PB8	4822 117 13605	Jumper 0402
9T01	4822 117 13601	22kΩ 5% 0402
9T02	4822 051 30223	22kΩ 5% 0.062W
9T02	4822 117 13601	22kΩ 5% 0402
9T04	4822 117 13605	Jumper 0402
9T06	4822 117 13605	Jumper 0402
9T07	4822 117 13605	Jumper 0402
9T08	4822 117 13605	Jumper 0402
9T09	4822 117 13605	Jumper 0402
9T10	4822 117 13605	Jumper 0402
9T12	4822 117 13605	Jumper 0402
9T14	4822 117 13605	Jumper 0402
9T50	4822 117 13605	Jumper 0402
9Y00	4822 117 13605	Jumper 0402
9Y03	4822 117 13605	Jumper 0402
9Y04	4822 117 13605	Jumper 0402
9Y05	4822 117 13605	Jumper 0402
9Y06	4822 117 13605	Jumper 0402
9Y07	4822 117 13605	Jumper 0402
9Y08	4822 117 13605	Jumper 0402
9Y09	4822 117 13605	Jumper 0402
9Y13	4822 117 13605	Jumper 0402
9Y14	4822 117 13605	Jumper 0402
9Y15	4822 117 13605	Jumper 0402
9Y16	4822 117 13605	Jumper 0402
9Y99	4822 320 12423	Speaker cable

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5003	4822 157 11716	Bead 30Ω at 100MHz
5318	2422 535 94092	33µH 10% 0805
5402	3198 018 38280	8.2µH 10% 0805
5404	4822 157 11506	Bead 120Ω at 100MHz
5405	4822 157 11506	Bead 120Ω at 100MHz
5408	2422 549 44875	Trimmer 91MHz 5CCB
5411	3198 018 32770	0.27µH 10% 0805
5415	4822 157 11716	Bead 30Ω at 100MHz
5416	4822 157 11716	Bead 30Ω at 100MHz
5703	4822 157 11716	Bead 30Ω at 100MHz
5705	4822 157 11876	6.8µH 10% 0805
5713	4822 157 11716	Bead 30Ω at 100MHz
5714	4822 157 11716	Bead 30Ω at 100MHz
5719	4822 157 11716	Bead 30Ω at 100MHz
5720	4822 157 11716	Bead 30Ω at 100MHz
5722	4822 157 11716	Bead 30Ω at 100MHz
5723	4822 157 11716	Bead 30Ω at 100MHz
5726	4822 157 11716	Bead 30Ω at 100MHz
5728	4822 157 11716	Bead 30Ω at 100MHz
5750	4822 157 11716	Bead 30Ω at 100MHz
5751	4822 157 11716	Bead 30Ω at 100MHz
5752	4822 157 11716	Bead 30Ω at 100MHz
5753	4822 157 11716	Bead 30Ω at 100MHz
5755	4822 157 11716	Bead 30Ω at 100MHz
5756	4822 157 11716	Bead 30Ω at 100MHz
5757	4822 157 11716	Bead 30Ω at 100MHz
5758	4822 157 11716	Bead 30Ω at 100MHz
5759	4822 157 11716	Bead 30Ω at 100MHz
5760	4822 157 11716	Bead 30Ω at 100MHz
5761	4822 157 11716	Bead 30Ω at 100MHz
5762	4822 157 11716	Bead 30Ω at 100MHz
5763	4822 157 11716	Bead 30Ω at 100MHz
5764	4822 157 11716	Bead 30Ω at 100MHz
5767	4822 157 11716	Bead 30Ω at 100MHz
5768	4822 157 11716	Bead 30Ω at 100MHz
5769	4822 157 11716	Bead 30Ω at 100MHz
5770	4822 157 11716	Bead 30Ω at 100MHz
5771	4822 157 11716	Bead 30Ω at 100MHz
5772	4822 157 11716	Bead 30Ω at 100MHz
5775	4822 157 11716	Bead 30Ω at 100MHz
5777	4822 157 11716	Bead 30Ω at 100MHz
5778	4822 157 11876	6.8µH 10% 0805
5779	4822 157 11716	Bead 30Ω at 100MHz
5800	4822 157 11716	Bead 30Ω at 100MHz
5801	4822 157 11716	Bead 30Ω at 100MHz

5A00	4822 157 11716	Bead 30Ω at 100MHz
5A01	4822 157 11716	Bead 30Ω at 100MHz
5A02	4822 157 11716	Bead 30Ω at 100MHz
5A03	4822 157 11716	Bead 30Ω at 100MHz
5A06	4822 157 11716	Bead 30Ω at 100MHz
5A07	4822 157 11716	Bead 30Ω at 100MHz
5A19	4822 157 11828	22µH 20% 0805
5A38	4822 157 11716	Bead 30Ω at 100MHz
5E00	4822 156 21729	Bead 1kΩ 100MHz 0805
5E01	2422 549 42896	Bead 120Ω 100MHz
5E01	4822 156 21729	Bead 1kΩ 100MHz 0805
5E02	4822 156 21729	Bead 1kΩ 100MHz 0805
5E03	4822 156 21729	Bead 1kΩ 100MHz 0805
5E50	2422 549 43062	Bead 600Ω at 100MHz
5E50	4822 157 11499	Bead 60Ω at 100MHz
5E51	2422 549 42896	Bead 120Ω 100MHz
5E51	2422 549 43062	Bead 600Ω at 100MHz
5E52	2422 549 43062	Bead 600Ω at 100MHz
5E53	2422 535 94134	10µH 20% 0805
5E53	2422 536 00779	10µH 20%
5E54	2422 549 43062	Bead 600Ω at 100MHz
5E54	4822 157 11499	Bead 60Ω at 100MHz
5E55	2422 549 43062	Bead 600Ω at 100MHz
5E58	2422 549 43062	Bead 600Ω at 100MHz
5I01	4822 157 11876	6.8µH 10% 0805
5I02	3198 018 90050	Bead 1kΩ at 100MHz
5I03	2422 549 43062	Bead 600Ω at 100MHz
5I04	4822 157 11716	Bead 30Ω at 100MHz
5I11	4822 156 21729	Bead 1kΩ 100MHz 0805
5I12	4822 157 11716	Bead 30Ω at 100MHz
5I13	4822 157 11716	Bead 30Ω at 100MHz
5I22	4822 157 11716	Bead 30Ω at 100MHz
5I30	4822 157 11716	Bead 30Ω at 100MHz
5I31	2422 535 94134	10µH 20% 0805
5I32	4822 157 11716	Bead 30Ω at 100MHz
5I33	4822 157 11716	Bead 30Ω at 100MHz
5I34	4822 157 11716	Bead 30Ω at 100MHz
5I35	4822 157 11716	Bead 30Ω at 100MHz
5I36	3198 018 34770	0.47µH 10% 0805
5I36	4822 157 11892	0.22µH 10% 0805
5I37	3198 018 34770	0.47µH 10% 0805
5I37	4822 157 11892	0.22µH 10% 0805
5I38	3198 018 34770	0.47µH 10% 0805
5I38	4822 157 11892	0.22µH 10% 0805
5I39	4822 157 11716	Bead 30Ω at 100MHz
5I40	4822 157 11716	Bead 30Ω at 100MHz
5I42	4822 156 21729	Bead 1kΩ 100MHz 0805
5I45	4822 157 11716	Bead 30Ω at 100MHz
5I46	4822 157 11716	Bead 30Ω at 100MHz
5I47	4822 157 11716	Bead 30Ω at 100MHz
5I54	4822 157 11716	Bead 30Ω at 100MHz
5I55	4822 157 11716	Bead 30Ω at 100MHz
5L02	3198 018 54770	0.47µF 10% 0603
5L04	3198 018 54770	0.47µF 10% 0603
5L06	3198 018 54770	0.47µF 10% 0603
5L13	4822 156 21729	Bead 1kΩ 100MHz 0805
5L14	4822 156 21729	Bead 1kΩ 100MHz 0805
5L15	4822 156 21729	Bead 1kΩ 100MHz 0805
5L16	4822 157 11716	Bead 30Ω at 100MHz
5L17	4822 157 11716	Bead 30Ω at 100MHz
5L18	4822 157 11716	Bead 30Ω at 100MHz
5P00	4822 157 11716	Bead 30Ω at 100MHz
5P01	4822 157 11716	Bead 30Ω at 100MHz
5P02	3198 018 33370	0.33µH 10% 0805
5P03	4822 157 11716	Bead 30Ω at 100MHz
5P05	3198 018 38280	8.2µH 10% 0805
5P08	2422 549 44875	Trimmer 91MHz 5CCB
5P09	4822 157 11716	Bead 30Ω at 100MHz
5P10	4822 157 11716	Bead 30Ω at 100MHz
5P11	2422 535 94092	33µH 10% 0805
5P50	3198 018 56880	6.8µH 10% 0603
5P51	4822 157 11716	Bead 30Ω at 100MHz
5P52	2422 549 43062	Bead 600Ω at 100MHz
5PA0	4822 157 71694	0.82µH 10%
5PA1	3198 018 31290	12µH 10%
5PA2	4822 157 10977	4.7µH 10%
5PA3	4822 157 10977	4.7µH 10%
5PA4	4822 157 71694	0.82µH 10%
5PA5	3198 018 31290	12µH 10%
5PA6	3198 018 31290	12µH 10%
5PA7	3198 018 31290	12µH 10%
5PA8	3198 018 31290	12µH 10%
5PA9	4822 157 11716	Bead 30Ω at 100MHz
5PB0	4822 157 11716	Bead 30Ω at 100MHz
5T02	4822 157 71206	Bead 600Ω 100MHz
5T03	2422 535 94134	10µH 20% 0805
5T04	4822 157 71206	Bead 600Ω 100MHz
5T20	4822 157 71206	Bead 600Ω 100MHz
5T22	4822 157 71206	Bead 600Ω 100MHz
5T25	2422 535 94134	10µH 20% 0805
5U01	3104 308 20661	Transf. BD13118-02
5U02	2422 535 94134	10µH 20% 0805
5U02	2422 536 00779	10µH 20%
5U03	2422 549 44197	Bead 220Ω at 100MHz
5U03	4822 157 11716	Bead 30Ω at 100MHz
5U04	2422 549 44197	Bead 220Ω at 100MHz
5U04	4822 157 11716	Bead 30Ω at 100MHz
5U05	2422 535 94134	10µH 20% 0805
5U05	2422 536 00779	10µH 20%
5U06	2422 535 94134	10µH 20% 0805
5U06	2422 536 00779	10µH 20%
5Y00	4822 157 11716	Bead 30Ω at 100MHz
5Y01	4822 157 11716	Bead 30Ω at 100MHz
5Y02	2422 549 44197	Bead 220Ω at 100MHz
5Y03	2422 549 44197	Bead 220Ω at 100MHz
5Y06	4822 157 11716	Bead 30Ω at 100MHz
5Y07	4822 157 11716	Bead 30Ω at 100MHz
5Y09	4822 157 11716	Bead 30Ω at 100MHz
5Y10	4822 157 11716	Bead 30Ω at 100MHz
5Y11	4822 157 11716	Bead 30Ω at 100MHz
5Y12	4822 157 11716	Bead 30Ω at 100MHz
5Y13	4822 157 11716	Bead 30Ω at 100MHz
5Y14	4822 157 11716	Bead 30Ω at 100MHz
5Y15	4822 157 11716	Bead 30Ω at 100MHz
5Y16	4822 157 11716	Bead 30Ω at 100MHz
5Y17	4822 157 11716	Bead 30Ω at 100MHz
5Y18	4822 157 11716	Bead 30Ω at 100MHz
5Y19	2422 549 43769	Bead 30Ω at 100MHz
5Y19	4822 157 11716	Bead 30Ω at 100MHz
5Y20	4822 157 11716	Bead 30Ω at 100MHz
5Y21	4822 117 10353	150Ω 1% 0.1W
5Y21	4822 157 11716	Bead 30Ω at 100MHz
5Y22	4822 117 10353	150Ω 1% 0.1W
5Y22	4822 157 11716	Bead 30Ω at 100MHz
5Y23	4822 157 11716	Bead 30Ω at 100MHz
5Z01	2422 549 45325	Bead 67Ω at 100MHz
5Z02	2422 549 45325	Bead 67Ω at 100MHz
5Z03	2422 549 45325	Bead 67Ω at 100MHz
5Z04	2422 549 45325	Bead 67Ω at 100MHz
5Z05	2422 549 45325	Bead 67Ω at 100MHz

6001	4822 130 80622	BAT54
6002	4822 130 11397	BAS316
6003	4822 130 80622	BAT54
6004	4822 130 80622	BAT54
6005	4822 130 11422	PLVA2650A
6006	4822 130 11564	UDZ3.9B
6701	4822 130 11397	BAS316
6702	4822 130 11397	BAS316
6703	4822 130 11397	BAS316
6705	4822 130 11397	BAS316
6710	4822 130 11397	BAS316
6711	4822 130 11397	BAS316
6712	4822 130 11397	BAS316
6713	4822 130 11397	BAS316
6714	4822 130 11397	BAS316
6715	4822 130 11397	BAS316
6717	4822 130 11397	BAS316
6718	4822 130 11397	BAS316
6719	9322 128 69685	S1D
6720	4822 130 11397	BAS316
6721	4822 130 11397	BAS316
6722	4822 130 11397	BAS316
6723	4822 130 11397	BAS316
6A00	4822 130 11551	UDZS10B
6A01	4822 130 11397	BAS316
6A02	4822 130 10838	UDZ3.3B
6A02	9322 159 70685	MM3Z9V1
6E51	4822 130 11397	BAS316
6E52	4822 130 11397	BAS316
6E53	4822 130 11397	BAS316
6E54	4822 130 11397	BAS316
6E55	4822 130 11397	BAS316
6E56	4822 130 11397	BAS316
6I03	4822 130 10328	BAV99W
6I04	4822 130 10328	BAV99W
6I08	4822 130 11423	PLVA2656A
6I09	4822 130 11423	PLVA2656A
6I10	4822 130 11397	BAS316
6I11	4822 130 11397	BAS316
6I12	4822 130 11397	BAS316
6I13	4822 130 11397	BAS316
6I14	4822 130 10328	BAV99W
6I15	4822 130 10328	BAV99W
6I16	4822 130 10328	BAV99W
6I17	4822 130 10328	BAV99W
6I18	4822 130 10328	BAV99W
6I19	4822 130 10328	BAV99W
6I20	4822 130 10328	BAV99W
6I21	4822 130 10328	BAV99W
6I26	4822 130 10328	BAV99W
6I27	4822 130 10328	BAV99W
6I28	4822 130 10328	BAV99W
6I30	4822 130 11416	PDZ6.8B
6I31	4822 130 11416	PDZ6.8B
6I32	4822 130 11416	PDZ6.8B
6I33	4822 130 11416	PDZ6.8B
6I37	4822 130 11416	PDZ6.8B
6I38	4822 130 11416	PDZ6.8B
6I39	4822 130 11416	PDZ6.8B
6I40	4822 130 11416	PDZ6.8B
6I41	4822 130 10328	BAV99W
6I43	4822 130 11416	PDZ6.8B
6I44	4822 130 10328	BAV99W
6I45	4822 130 11416	PDZ6.8B
6I46	4822 130 11416	PDZ6.8B
6I47	4822 130 11416	PDZ6.8B
6I48	4822 130 11416	PDZ6.8B
6I50	4822 130 10328	BAV99W
6I53	4822 130 11416	PDZ6.8B
6I54	4822 130 11416	PDZ6.8B
6I55	4822 130 11416	PDZ6.8B
6I56	4822 130 11416	PDZ6.8B
6I61	4822 130 11416	PDZ6.8B
6I63	4822 130 11397	BAS316
6I64	4822 130 11397	BAS316
6I65	4822 130 11397	BAS316
6I66	4822 130 11397	BAS316
6I69	4822 130 11416	PDZ6.8B
6I70	4822 130 11416	PDZ6.8B
6I71	4822 130 11416	PDZ6.8B
6I72	4822 130 11416	PDZ6.8B
6I73	4822 130 11416	PDZ6.8B
6I74	4822 130 11416	PDZ6.8B
6I75	4822 130 11416	PDZ6.8B
6I76	4822 130 11416	PDZ6.8B
6I90	4822 130 11416	PDZ6.8B
6I91	4822 130 11416	PDZ6.8B
6I92	4822 130 11416	PDZ6.8B
6I93	4822 130 11416	PDZ6.8B
6I99	4822 130 11422	PLVA2650A
6I99	4822 130 11423	PLVA2656A
6IA7	4822 130 11397	BAS316
6P10	9322 102 64685	UDZ2.7B
6PA1	4822 130 11397	BAS316
6PB1	4822 130 11397	BAS316
6PB2	4822 130 11397	BAS316
6PB3	4822 130 11397	BAS316
6PB4	4822 130 11397	BAS316
6PB5	4822 130 11397	BAS316
6PB6	4822 130 11397	BAS316
6PB7	4822 130 11397	BAS316
6PB8	4822 130 11397	BAS316
6PB9	4822 130 11397	BAS316
6T01	4822 130 11397	BAS316
6T02	4822 130 11397	BAS316
6T03	4822 130 11397	BAS316
6T04	4822 130 11397	BAS316
6T08	9340 548 71115	PDZ33B
6U01	4822 130 11397	BAS316
6U03	4822 130 11397	BAS316
6U04	4822 130 11397	BAS316
6U05	9340 548 61115	PDZ12B
6U06	9322 203 37685	BZG05C3V9
6U07	4822 130 11416	PDZ6.8B
6U08	4822 130 80622	BAT54
6U09	4822 130 80622	BAT54
6U10	4822 130 11522	UDZ15B
6U11	4822 130 11397	BAS316
6U12	9340 548 52115	PDZ5.1B
6U13	9340 548 58115	PDZ9.1B
6U14	4822 130 10328	BAV99W
6U14	4822 130 11397	BAS316
6U15	4822 130 11397	BAS316
6U16	9340 548 52115	PDZ5.1B
6U17	4822 130 11416	PDZ6.8B
6V05	9322 085 77685	TLMG3100

7001	9352 684 81557	SAA5801H/015
7002	3198 010 42320	BC857BW
7003	3198 010 42310	BC847BW
7004	3198 010 42310	BC847BW
7005	9322 172 45668	LF33ABDT
7006		For SW see item 0601
7007	9322 157 20668	MSM51V18165F-60J
7008	3198 010 42310	BC847BW
7009	3198 010 42310	BC847BW
7010	3198 010 42320	BC857BW
7011	9322 130 41668	M24C64-WMN6
7012	9322 199 93668	M29W400DT-55N6
7013	3198 010 42310	BC847BW
7014	3198 010 42320	BC857BW
7017	9340 310 30215	PDTC144ET
7018	9352 115 40118	74LVC245APW
7019	9352 115 40118	74LVC245APW
7022	3198 010 42320	BC857BW

7022	9340 310 30215	PDTC144ET
7320	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	9352 625 24518	TDA9321H/N2
7402	3198 010 42310	BC847BW
7410	3198 010 42310	BC847BW
7411	3198 010 42310	BC847BW
7414	3198 010 42310	BC847BW
7415	3198 010 42310	BC847BW
7701	9322 170 14668	LF15ABDT
7703	3198 010 42310	BC847BW
7705	3198 010 42310	BC847BW
7706	3198 010 70400	74LVC1G14GW
7707	3198 010 42310	BC847BW
7708	3198 010 42310	BC847BW
7709	3198 010 42310	BC847BW
7710	3198 010 42310	BC847BW
7711	2422 486 80938	Socket 32p f PLCC
7711		For SW see item 0605
7712	9351 870 00118	74HC573PW
7713	9352 688 09557	SAA4978H/V204
7714	9965 000 02179	MS81V04160-25TB
7715	4822 209 73852	PMBT2369
7717	4822 209 73852	PMBT2369
7719	9322 206 19672	MSM56V16160F-7T3-FG
7720	9322 207 36702	T6TX5EF-0001
7725	4822 209 73852	PMBT2369
7752	9322 202 21671	T6TU5XB-0001
7753	9322 206 19672	MSM56V16160F-7T3-FG
7760	9352 730 86557	SAA4998H/V1
7772	9322 170 14668	LF15ABDT
7773	9322 179 78668	LF18ABDT
7774	9322 142 88668	LF25CDT
7999	9322 127 85682	M27C512-90-C1 SMD
7A00	4822 209 30095	LM833D
7A01	3198 010 42310	BC847BW
7A02	9322 199 42702	MSP3421G-Q1-B8V3
7A03	4822 209 30095	LM833D
7A04	4822 130 60373	BC856B
7A06	5322 209 16349	TDA7309D
7A07	9322 183 05668	TS482ID
7A08	9340 425 20115	BC847BS
7A09	4822 130 60373	BC856B
7A10	9340 425 20115	BC847BS
7A11	9322 199 16668	M74HC590T
7A12	9322 199 16668	M74HC590T
7A13	3198 010 42310	BC847BW
7A14	9351 869 90118	74HCT573PW
7A15	9351 869 90118	74HCT573PW
7A16	9322 153 66668	CY7C199-15ZC
7A16	9322 208 98668	M68AF031AM70N6
7A31	9340 425 20115	BC847BS
7E01	9322 142 88668	LF25CDT
7E02		For SW see item 0602
7E03	9352 687 21165	74LVC1G126GW
7E04	9352 687 20125	74LVC1G125GW
7E05	9322 170 14668	LF15ABDT
7E10	9352 686 35118	PCA9515DP
7E12	9340 425 20115	BC847BS
7E23	9322 181 72671	AD9883AKST-110
7E24	9322 205 36668	AD9283BRSZ-50
7E25	3198 010 42320	BC857BW
7E26	3198 010 42320	BC857BW
7E27	3198 010 42320	BC857BW
7I01	9340 425 20115	BC847BS
7I02	9340 425 20115	BC847BS
7I04	3198 010 42310	BC847BW
7I05	9340 425 30115	BC847BPN
7I07	4822 130 60142	BC869
7I09	3198 010 42310	BC847BW
7I10	9352 686 35118	PCA9515DP
7I17	9322 116 87668	TEA6422D
7I18	9322 199 35671	SII9993CTG100
7I19		For SW see item 0603
7I21	4822 209 12776	TDA8601T/C1
7I21	9340 425 30115	BC847BPN
7I23	9340 425 20115	BC847BS
7I25	9352 724 34118	UDA1352TS/N3
7I25	9352 724 34518	UDA1352TS/N3
7I26	9340 425 30115	BC847BPN
7I27	9340 425 30115	BC847BPN
7I28	9340 425 30115	BC847BPN
7I29	9340 425 30115	BC847BPN
7I30	9340 425 30115	BC847BPN
7I31	9340 425 30115	BC847BPN
7I32	9351 869 40118	74HC4053PW
7I33	9351 869 40118	74HC4053PW
7I40	3198 010 42310	BC847BW
7I42	3198 010 42310	BC847BW
7I44	9340 425 20115	BC847BS
7I45	9322 192 16685	TS2431AI
7I46	5322 130 60159	BC846B
7I48	9340 425 10115	BC857BS
7I49	9340 310 30215	PDTC144ET
7I50	9340 425 30115	BC847BPN
7I51	9340 560 35235	BSH112
7I52	9340 560 35235	BSH112
7I55	4822 209 12776	TDA8601T/C1
7I55	4822 209 16095	BA7657F
7I56	3198 010 42310	BC847BW
7I57	3198 010 42310	BC847BW
7I58	3198 010 42310	BC847BW
7I59	9340 560 35235	BSH112
7I64	3198 010 42310	BC847BW
7I71	4822 209 16095	BA7657F
7I72	9340 560 35235	BSH112
7I75	9352 686 35118	PCA9515DP
7I90	3198 010 42310	BC847BW
7I91	3198 010 42310	BC847BW
7I92	3198 010 42310	BC847BW
7I93	3198 010 42310	BC847BW
7I94	3198 010 42310	BC847BW
7I95	3198 010 42310	BC847BW
7L01	9322 181 72671	AD9883AKST-110
7L02	4822 209 17398	LD1117DT33
7P05	3198 010 42310	BC847BW
7P06	3198 010 42310	BC847BW
7P07	9340 425 20115	BC847BS
7P08	3198 010 42310	BC847BW
7P09	9352 625 24518	TDA9321H/N2
7P51	9322 147 01668	Z86130-12SSC
7P52	9340 425 20115	BC847BS
7P53	9340 425 10115	BC857BS
7P54	4822 209 12776	TDA8601T/C1
7P54	9322 208 56668	BA7609F
7P55	9350 399 00118	TDA9820T/V1
7P56	4822 209 17345	M62320FP
7P57	9352 686 35118	PCA9515DP
7P58	9340 425 20115	BC847BS
7P59	9340 425 20115	BC847BS
7P60	9352 690 58125	74LVC1G66GW
7P61	9340 425 20115	BC847BS
7P62	9352 690 58125	74LVC1G66GW
7P63	3198 010 42320	BC857BW
7PA0	3198 010 42310	BC847BW
7PA1	3198 010 42310	BC847BW
7PA2	3198 010 42310	BC847BW
7PA5	3198 010 42310	BC847BW
7PA6	9352 639 83557	SAB9083H/N4
7PA7	3198 010 42310	BC847BW
7PA8	3198 010 42310	BC847BW
7PA9	3198 010 42310	BC847BW
7PB1	9352 683 81115	74LVC1G32GW
7PB2	3198 010 42310	BC847BW
7PB5	3198 010 42310	BC847BW
7PB6	3198 010 42310	BC847BW
7U01	4822 130 60373	BC856B
7U02	4822 130 60373	BC856B
7U03	9322 091 04668	SI4410DY
7U04	9322 091 04668	SI4410DY
7U05	3198 010 42320	BC857BW
7U06	9340 425 20115	BC847BS
7U07	9340 425 30115	BC847BPN
7U08	4822 130 42804	BC817-25
7U09	4822 130 42804	BC817-25
7U10	3198 010 42310	BC847BW
7U11	3198 010 42310	BC847BW
7U12	3198 010 42310	BC847BW
7U13	9340 425 30115	BC847BPN
7V01	9322 200 14671	EP1C12F256C8
7V03	9322 206 19672	MSM56V16160F-7T3-FG
7V04	9340 425 20115	BC847BS
7Y01	9340 310 30215	PDTC144ET
7Y02	3198 010 42320	BC857BW

PDP Audio [C]

Various

0341	3104 301 24561	Spring
1701	2422 549 00112	Line filt. 50V 3A
1702	2422 549 00112	Line filt. 50V 3A
1735	2422 025 10768	Connector 3p m
1735	4822 267 10918	Connector 3p
1736	2422 025 10768	Connector 3p m
1739	2422 025 10769	Connector 9p m
1M02	2422 025 11244	Connector 7p m

⊣⊢

2701	2020 552 94427	100pF 5% 50V
2702	5322 126 11578	1nF 10% 50V 0603
2704	5322 126 11578	1nF 10% 50V 0603
2705	2020 552 96684	470nF 10% 25V 0805
2706	2222 580 15649	100nF 10% 50V 0805
2707	4822 126 14585	100nF 10% 0805 50V
2708	2020 552 96326	220nF 10% 16V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	5322 126 11578	1nF 10% 50V 0603
2712	2020 552 96684	470nF 10% 25V 0805
2713	2020 552 96684	470nF 10% 25V 0805
2714	3198 017 33330	33nF 20% 16V 0603
2714	4822 126 14549	33nF 16V 0603
2715	5322 126 11578	1nF 10% 50V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	4822 122 33761	22pF 5% 50V
2719	5322 126 11578	1nF 10% 50V 0603
2720	2020 552 96326	220nF 10% 16V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2724	2020 552 96684	470nF 10% 25V 0805
2726	3198 017 33330	33nF 20% 16V 0603
2726	4822 126 14549	33nF 16V 0603
2727	5322 126 11578	1nF 10% 50V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2730	2020 552 96684	470nF 10% 25V 0805
2764	4822 126 14491	2.2µF 10V 0805
2766	4822 126 14491	2.2µF 10V 0805
2768	4822 124 40255	100µF 20% 63V
2769	4822 124 40255	100µF 20% 63V
2777	2020 552 96683	220nF 10% 50V
2778	4822 124 40769	4.7µF 20% 100V
2779	2020 552 96683	220nF 10% 50V
2780	2020 552 96683	220nF 10% 50V
2781	2020 552 96683	220nF 10% 50V
2783	4822 124 81151	22µF 50V
2786	2238 586 15641	22nF 10% 50V 0603
2788	4822 124 40255	100µF 20% 63V
2789	2020 552 96684	470nF 10% 25V 0805
2790	4822 124 40255	100µF 20% 63V

⌐WW⌐

3701	4822 051 30103	10kΩ 5% 0.062W
3702	4822 051 30682	6.8Ω 5% 0.062W
3703	4822 051 30333	33kΩ 5% 0.062W
3704	4822 117 10833	10kΩ 1% 0.1W
3705	4822 051 20828	8.2Ω 5% 0.1W
3706	4822 051 30472	4.7Ω 5% 0.062W
3707	4822 051 30683	68kΩ 5% 0.062W
3708	4822 051 30563	56kΩ 5% 0.062W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 051 30223	22kΩ 5% 0.062W
3711	4822 050 21204	120kΩ 1% 0,6W
3712	4822 051 30103	10kΩ 5% 0.062W
3713	4822 116 52207	1.2kΩ 5% 0.5W
3713	4822 117 11817	1.2kΩ 1% 0.0625W
3714	4822 117 12925	47kΩ 1% 0.063W 0603
3715	4822 117 12925	47kΩ 1% 0.063W 0603
3716	4822 117 12925	47kΩ 1% 0.063W 0603
3717	4822 116 52234	100kΩ 5% 0.5W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3721	4822 051 30472	4.7Ω 5% 0.062W
3722	4822 051 30683	68kΩ 5% 0.062W
3723	4822 051 30563	56kΩ 5% 0.062W
3724	4822 117 11503	220Ω 1% 0.1W
3725	4822 051 30223	22kΩ 5% 0.062W
3726	4822 117 11503	220Ω 1% 0.1W
3727	4822 117 11503	220Ω 1% 0.1W
3743	4822 117 11449	2.2kΩ 5% 0.1W 0805
3746	4822 051 30223	22kΩ 5% 0.062W
3747	4822 117 12925	47kΩ 1% 0.063W 0603
3748	4822 116 83883	470Ω 5% 0.5W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3756	4822 117 11449	2.2kΩ 5% 0.1W 0805
3757	4822 117 11449	2.2kΩ 5% 0.1W 0805
3760	4822 117 12891	220kΩ 1%
3761	4822 051 20109	10Ω 5% 0.1W
3762	4822 051 20109	10Ω 5% 0.1W
3763	4822 117 13632	100kΩ 1% 0603 0.62W
3764	4822 051 30222	2.2kΩ 5% 0.062W
3765	4822 051 30222	2.2kΩ 5% 0.062W
3766	4822 051 30103	10kΩ 5% 0.062W
3766	4822 117 13632	100kΩ 1% 0603 0.62W
3767	4822 117 13632	100kΩ 1% 0603 0.62W
3768	4822 117 13632	100kΩ 1% 0603 0.62W
3790	4822 051 30272	2.7kΩ 5% 0.062W
3791	4822 051 30272	2.7kΩ 5% 0.062W
3792	4822 051 30103	10kΩ 5% 0.062W
3792	4822 051 30183	18kΩ 5% 0.062W
3793	4822 051 30103	10kΩ 5% 0.062W
3793	4822 051 30183	18kΩ 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3999	4822 051 30101	100Ω 5% 0.062W
9717	4822 051 30008	Jumper 0603

5701	2422 536 00385	68µH 10%
5702	2422 536 00385	68µH 10%
5703	4822 157 11716	Bead 30Ω at 100MHz
5704	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz
5711	4822 157 11411	Bead 80Ω at 100MHz
5712	4822 157 11411	Bead 80Ω at 100MHz

6701	4822 130 11397	BAS316
6710	4822 130 11551	UDZS10B
6711	4822 130 11551	UDZS10B

7700	9322 163 86682	TDA7490L
7701	3198 010 42310	BC847BW
7701	5322 130 60159	BC846B
7703	3198 010 42310	BC847BW
7703	5322 130 60159	BC846B
7704	3198 010 42310	BC847BW
7704	5322 130 60159	BC846B
7705	3198 010 42310	BC847BW
7705	5322 130 60159	BC846B
7706	3198 010 42320	BC857BW
7706	4822 130 60373	BC856B
7707	3198 010 42310	BC847BW
7707	5322 130 60159	BC846B
7710	3198 010 42310	BC847BW
7710	5322 130 60159	BC846B
7711	3198 010 42310	BC847BW
7711	5322 130 60159	BC846B
7712	3198 010 42310	BC847BW
7712	5322 130 60159	BC846B
7713	3198 010 42310	BC847BW
7713	5322 130 60159	BC846B

Side I/O Assy [D]

Various

1001	2422 026 05133	Connector SVHS 4p f
1002	4822 267 10975	Sock CINCH f YeWhRd
1010	4822 267 31014	Socket headphone
1M36	2422 025 17179	Connector 11p m

2003	2022 552 05679	1µF 10% 16V 0805
2004	3198 016 36810	680pF 25V 0603
2005	2020 552 94427	100pF 5% 50V
2006	3198 016 36810	680pF 25V 0603
2007	2020 552 94427	100pF 5% 50V
2008	2238 916 15641	22nF 10% 25V 0603
2009	5322 126 11583	10nF 10% 50V 0603
2010	2238 916 15641	22nF 10% 25V 0603
2011	5322 126 11583	10nF 10% 50V 0603

3000	4822 051 30759	75Ω 5% 0.062W
3004	4822 051 30759	75Ω 5% 0.062W
3008	4822 051 30222	2.2kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30333	33kΩ 5% 0.062W
3011	4822 051 30392	3.9Ω 5% 0.063W 0603
3012	4822 051 30102	1kΩ 5% 0.062W
3013	4822 051 30333	33kΩ 5% 0.062W
3016	4822 051 30103	10kΩ 5% 0.062W
3020	4822 051 30103	10kΩ 5% 0.062W
9004	4822 051 30008	Jumper 0603
9005	4822 051 30008	Jumper 0603
9006	4822 051 30008	Jumper 0603
9007	4822 051 30008	Jumper 0603
9008	4822 051 30008	Jumper 0603
9009	4822 051 30008	Jumper 0603
9010	4822 051 30008	Jumper 0603
9011	4822 051 30008	Jumper 0603

6000	4822 130 11416	PDZ6.8B
6001	4822 130 11416	PDZ6.8B
6002	4822 130 11416	PDZ6.8B
6003	4822 130 11416	PDZ6.8B
6004	4822 130 11416	PDZ6.8B
6005	4822 130 11416	PDZ6.8B
6006	4822 130 11416	PDZ6.8B
6007	4822 130 11416	PDZ6.8B
6008	4822 130 11416	PDZ6.8B
6009	4822 130 11416	PDZ6.8B
6010	4822 130 11416	PDZ6.8B
6011	4822 130 11416	PDZ6.8B

Top Control Assy [E]

Various

0345	2422 025 16544	Connector 6p m
1014	3104 328 28921	Top control 2K4
1701	4822 276 13775	Switch 1p 0.1A 12V
1702	4822 276 13775	Switch 1p 0.1A 12V
1703	4822 276 13775	Switch 1p 0.1A 12V
1704	4822 276 13775	Switch 1p 0.1A 12V
1705	4822 276 13775	Switch 1p 0.1A 12V
1710	4822 276 14007	Switch 2p 0.1A 12V
8345	3104 311 06941	Cable 6P/680/6P

3008	4822 117 10845	620Ω 1% 0.1W
3010	4822 117 11534	1.1kΩ 1% 0.1W
3011	4822 117 11951	2kΩ 1% 0.1W
3013	4822 117 13528	200Ω 1% 0.125W 0805
3014	3198 031 03910	390Ω 1% 0402
3017	4822 051 30339	33Ω 5% 0.062W
3018	4822 051 30339	33Ω 5% 0.062W
3019	4822 051 30339	33Ω 5% 0.062W
3020	4822 051 30339	33Ω 5% 0.062W
3021	4822 051 30339	33Ω 5% 0.062W
3022	4822 051 30339	33Ω 5% 0.062W
3023	4822 051 30339	33Ω 5% 0.062W
3024	4822 051 30339	33Ω 5% 0.062W
3025	4822 051 30339	33Ω 5% 0.062W
3026	4822 051 30339	33Ω 5% 0.062W
3027	4822 051 30339	33Ω 5% 0.062W
3028	4822 051 30339	33Ω 5% 0.062W
3999	4822 117 13602	2.2kΩ 5% 0.01W 0402
9000	4822 117 13605	Jumper 0402

6001	9322 198 19685	SML512BC2T
6002	9322 198 19685	SML512BC2T
6003	9322 198 19685	SML512BC2T
6004	9322 198 19685	SML512BC2T
6005	9322 198 19685	SML512BC2T
6006	9322 198 19685	SML512BC2T
6007	9322 198 19685	SML512BC2T
6008	9322 198 19685	SML512BC2T
6009	9322 198 19685	SML512BC2T
6010	9322 198 19685	SML512BC2T
6011	9322 198 19685	SML512BC2T
6012	9322 198 19685	SML512BC2T

LED + Switch [J]

Various

0345	2422 025 16961	Connector 6p m SMD
1040	9322 206 81667	TSOP34836YA1
1M01	2422 025 17103	Connector 3p m SMD
1M20	2422 025 17441	Connector 12p m

2030	4822 124 23002	10µF 16V
2040	4822 124 12095	100µF 20% 16V
2060	5322 124 41945	22µF 20% 35V
2070	4822 126 14583	470nF 10% 16V 0805
2071	4822 124 23002	10µF 16V

3030	3198 031 04720	4.7kΩ 5% 0402
3031	4822 117 12889	270kΩ 1% 0.063W 0603
3032	2322 705 70184	180Ω 5% 0402
3033	4822 051 30102	1kΩ 5% 0.062W
3034	4822 117 13548	1kΩ 5% 0402
3035	3198 031 04720	4.7kΩ 5% 0402
3036	3198 031 02280	2.2Ω 5% 0.1W 0402
3037	3198 031 02280	2.2Ω 5% 0.1W 0402
3040	4822 117 13597	330Ω 5% 0402 0.01W
3041	4822 117 13606	10kΩ 5% 0.01W 0402
3042	3198 031 06820	6.8kΩ 5% 0.01W 0402
3051	4822 117 13597	330Ω 5% 0402 0.01W
3060	4822 117 13606	10kΩ 5% 0.01W 0402
3061	4822 051 30331	330Ω 5% 0.062W
3062	4822 117 11373	100Ω 1% 0805
3063	4822 117 13606	10kΩ 5% 0.01W 0402
3064	4822 117 11373	100Ω 1% 0805
3070	2322 705 70475	4.7MΩ 5% 0402
3071	2322 705 70475	4.7MΩ 5% 0402
3072	4822 117 13548	1kΩ 5% 0402
3073	3198 031 03320	3.3kΩ 5% 0402
3074	4822 117 13606	10kΩ 5% 0.01W 0402
3075	3198 031 04720	4.7kΩ 5% 0402
3078	3198 031 03320	3.3kΩ 5% 0402
3079	3198 031 03320	3.3kΩ 5% 0402
9010	4822 117 13605	Jumper 0402
9013	4822 117 13605	Jumper 0402
9019	4822 117 13605	Jumper 0402
9022	4822 051 30008	Jumper 0603
9024	4822 051 30008	Jumper 0603
9026	4822 117 13605	Jumper 0402
9027	4822 117 13605	Jumper 0402
9040	4822 117 13605	Jumper 0402
9043	4822 117 13605	Jumper 0402

6030	4822 130 11397	BAS316
6031	4822 130 11397	BAS316
6051	4822 130 83915	TLMV3100
6060	9322 198 19685	SML512BC2T
6061	4822 130 11397	BAS316
6070	9322 140 63685	TEMD5000

7030	3198 010 42320	BC857BW
7031	5322 130 62804	BCP53
7032	3198 010 42310	BC847BW
7060	3198 010 42310	BC847BW
7061	3198 010 42310	BC847BW
7070	9322 192 63668	LM358P

11. Revision List

Manual xxxx xxx xxxx.0
- First release.

Manual xxxx xxx xxxx.1
- Several pictures updated.
  Fonts and other minor issues in PDF-file solved.

Manual xxxx xxx xxxx.2
- Frontpage: 12nc of the SDI plasma panel manual added.
- Chapter 6: Some diagrams updated and small corrections made.
- Chapter 7: Ambi Light Panel schematic diagrams and PWB layouts added.
- Chapter 10: Spare Parts List updated and components of Ambi Light Panel added.
- All chapters: Several small updates and corrections made.